

DANCE/MOVEMENT THERAPY (DMT) FOR CANCER SURVIVORS
AND CAREGIVERS IN ALASKA

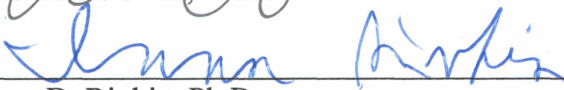
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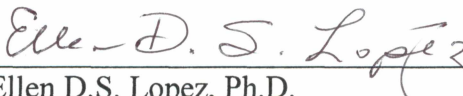
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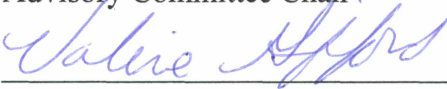
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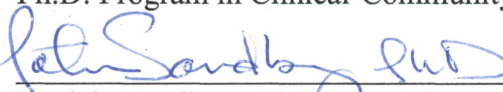

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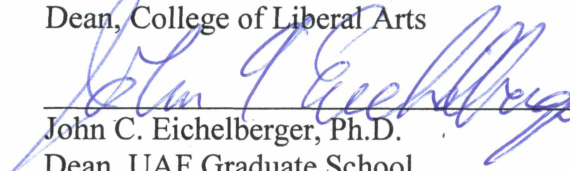

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DANCE/MOVEMENT THERAPY (DMT) FOR CANCER SURVIVORS
AND CAREGIVERS IN FAIRBANKS, ALASKA

A
DISSERTATION

Presented to the Faculty
of the University of Alaska Fairbanks

in Partial Fulfillment of Requirements
for the Degree of

DOCTOR OF PHILOSOPHY

By

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Abstract

Worldwide, the burden of cancer continues to grow and impact the quality of life of patients, their families, and caregivers. Aside from the physical effects and financial costs of cancer and its treatment, a significant portion of cancer patients and their caregivers experience emotional, social, and psychological distress throughout the trajectory of their illness and extending to long-term survivorship. Despite medical advances in cancer treatment, a cancer diagnosis is still often considered to be synonymous with death, pain, and suffering.

It has been established that engaging in the creative arts could promote quality of life (QOL) especially for those suffering from chronic illnesses such as cancer. Specifically, studies on dance/movement therapy (DMT) have indicated its efficacy as a complementary and holistic intervention in providing social support, decreasing fatigue and stress, increasing mobility, and enhancing overall wellbeing of cancer survivors. Results from a pilot DMT study that explored the cultural suitability, feasibility, and benefits of using DMT in the post-treatment QOL of Alaska Native cancer survivors indicated positive impacts on participants' mobility, body awareness, emotional expression, self-care, and wellbeing. Participants from the pilot study highlighted the need for providing DMT in the community and opening the DMT group to both cancer survivors and caregivers. This suggestion was in consideration of the lack of support groups available to both cancer survivors and caregivers that focus on cancer survivorship and promotion of quality of life. Existing locally available cancer support groups emphasize cancer education but are limited in meeting the psycho-social, emotional and physical needs of both cancer survivors and caregivers. The encouraging results and feedback from participants not only supported existing studies on DMT's cross-cultural benefits in promoting QOL among cancer survivors but also provided the rationale for a larger dissertation study for survivors and caregivers in Fairbanks, Alaska. It was in this context that DMT's significance in increased survivorship and QOL among cancer survivors and caregivers in Alaska was examined. The study employed a sequential, mixed methods small-N design in investigating the therapeutic benefits of

DMT among cancer survivors and caregivers ($N = 16$) in a practice-based setting in Fairbanks, Alaska. Adhering to the principles of community-based partnership research (CBPR), the study established a collaborative partnership with the Fairbanks Memorial Hospital as it piloted a 12- week, open DMT group intervention for cancer survivors and caregivers. The study was conducted in two phases: Phase 1: DMT Intervention (12 weeks) and Phase 2: Follow-up and Findings Meeting (3 months after the last offered DMT session), which assessed DMT's lasting effects on participants. Quantitative and qualitative data were employed to examine DMT's effects on participant's mental health functioning, body awareness, subjective QOL, and sense of group cohesiveness and engagement with the DMT group.

Quantitative findings indicated significant improvements in participants' mental health functioning with a moderate effect size after participation in the DMT program. Although no significant pre- to post-change was found on participants' subjective QOL, cancer survivors reported significantly better QOL (social, emotional and functional wellbeing) at the three-month follow-up, suggesting that DMT can offer late, but possibly lasting, positive changes. Additionally, participants' ability for self-regulation and use of avoidance as a coping tool for pain were found to increase after their DMT participation. No significant changes were noted in participants' level of cohesion with the DMT group. However, qualitative findings indicate that participants found that the DMT program was extremely beneficial in promoting their physical, psychological, social and spiritual wellbeing and expressed overall strong positive feelings toward their DMT group.

Implications for research and clinic practice were discussed as informed by the study's strengths and limitations. One the study's strengths is its adherence to the principles of community-based participatory research (CBPR) as an over-arching framework in guiding all aspects of the research process. By establishing a collaborative partnership between the UAF academic community and the local community hospital (Fairbanks Memorial Hospital), this study was able to build on the community's strengths and resources in an effort to help promote cancer survivorship for cancer survivors and

caregivers. Future recommendations include further strengthening collaborative community partnerships with a larger, DMT confirmatory study using a Randomized Control Trial (RCT) design, while integrating a mixed-methods approach. Implementing these strategies would help establish DMT's efficacy as a holistic and ecologically valid intervention for cancer survivors and caregivers in Fairbanks, Alaska.

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“The bond that links your true family is not one of blood,
but of respect and joy in each other's life.”

(Unknown)

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Chapter 1: Introduction

1.1 Overview of the Research

This study blended public health intervention within clinical practice by employing a participatory, practice-based, and patient-focused research approach to explore the effectiveness of dance/movement therapy (DMT) as an intervention among cancer survivors and caregivers in Fairbanks, Alaska.

Employing a participatory approach encouraged collaboration with research participants so that their perspectives and concerns could be integrated into all aspects of the research process (Israel, Schulz, Parker, & Becker, 1998). Using a practice-based and patient-focused approach afforded emphasis to evaluating each individual's progress and treatment outcomes in real time within a naturalistic clinical setting (Castonguay, Barkham, Lutz, & McAleavey, 2013).

This research used a sequential mixed methods approach. It comprised two phases of intervention and data collection: Phase 1- DMT intervention, and Phase 2- Follow-up and Findings Forum. It employed a small-N design to assess the therapeutic effects and change processes of DMT as a psychotherapy intervention among cancer survivors and cancer caregivers ($N = 16$). This design was chosen as the most appropriate because it allowed for focus on the global outcomes before and after the DMT program and a closer examination of clinical changes that occurred within individual participants (Hilliard, 1993) throughout the 12-week DMT intervention. During Phase 1, participants attended an open group DMT session and were assessed individually at multiple time points on their quality of life (QOL), client disturbance, and index of mental health functioning, body awareness, sense of group cohesion, and subjective DMT experience.

During the Phase 2 Follow-up and Findings Presentation, the preliminary group and individual results from Phase 1 were presented back to participants for co-interpretation and clarification. Research findings were also presented to community stakeholders including cancer navigators, oncologists, and members of the Fairbanks Memorial Hospital (FMH) Cancer Committee Board. The objective was to provide important information to 1) help their decision-making on how to use the data from the research in

enhancing existing services that help promote the quality of life of cancer survivors and caregivers locally, and 2) explore how DMT could be integrated in the services being offered to cancer survivors and caregivers in the local community.

Both phases of research used a convergent parallel mixed-methods research design in which quantitative and qualitative data were simultaneously collected to address study aims (Plano Clark, 2010). The rationale for using a mixed methods design was its capacity to triangulate and clarify if, how, and why qualitative findings and quantitative results mutually corroborated or contradicted each other. The mixed-methods approach thus provided a more comprehensive account for this research assessment (Cresswell & Plano Clark, 2011). The quantitative data provided a general understanding of the research problem while the qualitative data helped explain and expand upon the quantitative results (Plano Clark, 2010). Through in-depth exploration of participants' experiences and views about the DMT intervention, a contextual account of the research process was gathered to further help refine the research methods (Bryman, 2006). As such, this enhanced the utility of research results to inform future DMT practice and research (Ivankova, Cresswell, & Stick, 2006).

In this chapter, a brief background and significance of studying the therapeutic benefits of a DMT intervention among cancer survivors and caregivers is presented, followed by an overview of research design and methodology. The chapter concludes with a problem statement and presentation of research questions and study aims.

1.2. Background and Significance

1.2.1. Cancer Statistics: State, National, and International.

Cancer is a growing epidemic that affects individuals, families and communities (Cancer Treatment & Survivorship, 2012). Global cancer incidence and prevalence statistics are continuously increasing, and currently cancer is a leading cause of death. According to the World Cancer Research Fund International, as of 2012, there were approximately 14.1 million diagnosed cancer cases worldwide, and by 2035, the number of cancer cases is expected to increase to 24 million (Ferlay et al., 2015). Further, the World

Health Organization (WHO) reports that 8.2 million deaths in 2012 were due to cancer (Globocan, 2012; De Martel et al., 2012).

In the United States (U.S.), cancer is the second most common cause of death, with more than one million people diagnosed with cancer each year (Victorson, Cella, Wagner, Kramer, & Smith, 2007). It is estimated that about 585,720 Americans died of cancer in 2014 (American Cancer Society, 2014). That amounted to 1,600 person-deaths per day and accounted for nearly one of every four deaths (De Martel et al., 2012). According to the WHO, as individuals age their susceptibility to developing cancer increases (De Martel et al., 2012). As people age their body's overall cellular repair efficiency decreases. At the same time, they are developing and accumulating many of the risk factors (lifestyle, genetics, environmental) associated with specific cancers. Given our aging U.S. population, together with the country's expected population growth, it is predicted that by 2050 twice as many American cancer victims as the 1.2 million who were diagnosed 2000 (Wingo, Jamison, Young, & Gargiullo, 2004).

In Alaska, it is estimated that Whites and Alaska Native people are numerically the two most dominant racial groups, which together account for about 91% of the population between 1996-2002, with Alaska Natives accounting for about 17% of the population (State of Alaska, 2015). As of 2013, the proportion of the Alaskan population composed of Alaska Natives decreased to about 15% for the state and 1% for the U.S. (census.org). Cancer has been the leading cause of death for all Alaskans during the period between 1993 –2002, and the U.S. Cancer Statistics reported that Alaska's cancer incidence rate to be higher than the national average (See Table 1.1). Specifically, the following cancer types surpass U.S. rates: female breast, colorectal, lung and bronchus, and prostate (O'Brien & Upton, 2008). Since the mid-1990s, the incidence of cancer among Alaska Native people has increased dramatically, and it has grown to be the leading cause of death among this population. From 2004-2008, Alaska Native cancer incidence rates were higher than U.S. White rates for men and women at 491.4 per 100,000 vs. 466 per 100,000, respectively (Kelly, Cudney, & Weinert, 2011).

Table 1.1

Highest ranked cancers by rate for Alaskans

Type of Cancer	AK Natives	No. of Cases	AK Whites	No. of Cases	U.S. Natives
	Rate per 100,000		Rate per 100,000		Rate per 100,000
1. Female Breast	136.7	446	138.6	2,246	62.8
2. Colorectal	104.9	529	49.1	1,231	36.5
3. Lung and Bronchus	94.8	476	73.1	1,861	36.2
4. Prostate	80.4	174	177.6	2,245	62.8
5. Stomach	23.6	128	5.6	139	10.7
6. Kidney and Renal Pelvis	19.7	109	13.1	397	11.8

Fortunately, with advances in medical science, a cancer diagnosis is not always a death sentence. Continued progress in early detection of certain cancers and improvements in cancer treatments and supportive care have led to a steady decline of cancer-related deaths in the U.S. over the past 15 years (Wingo et al., 2004). Cancer survivorship has also generally improved (Victorson et al., 2007). As of 2003, the five-year relative survival rate for all types of cancer diagnoses was estimated at 68%, or two out of three cancer survivors living at least five years beyond their diagnosis. A result is a growing population of Americans who are surviving cancer and living longer. As of 2012 there were an estimated 13.7 million US cancer survivors (Cancer Treatment & Survivorship, 2014).

1.2.2 Holistic Definition of Health

The global need to reduce premature mortality among cancer survivors and ease the cancer burden experienced by families, communities, and nations worldwide has shifted the focus from an acute care medical model to a long-term wellness model for cancer survivors (Miller, 2008). Within a holistic framework of wellness, the individual is conceptualized as having physical, psychological, spiritual, and social dimensions (Ferrell, Grant, Funk, Otis-Green, & Garcia, 1998a). Based on this, WHO redefines “health” as no longer just the absence of a disease but also encompassing complete physical, mental, and social wellbeing (Stuckey & Nobel, 2010).

Demonstrating this broader focus on holistic wellness, WHO's cancer research agency, International Agency for Research on Cancer (IARC), in collaboration with the United Nations, recently launched the 2013 Global Action Plan for the Prevention and Control of Non-Communicable Diseases, a concerted research effort focused on cancer causes, prevention, and control. Among its goals, the Action Plan includes generating and disseminating existing and new knowledge on delivery of evidence-based approaches for cancer intervention and control across the phases of cancer survivorship – from diagnosis to treatment and care (Globocan 2012, 2015). Related to this is the WHO holistic approach toward palliative care, which includes providing supportive interventions not just to the cancer survivors but also to their informal caregivers and assessing their needs to promote well-being and overall QOL (Siegel, Reveis, Houts, & Mor, 2006).

1.2.3 Holistic Approach to Cancer Care and Survivorship

Comprehensive cancer centers recognize the need for an inter-disciplinary and holistic approach for cancer care and survivorship and for promoting health and wellness (Stuckey & Nobel, 2010). The WHO definition of health as encompassing overall quality of life instead of merely the absence of an illness has led to a growing interest in the effects of creative arts engagement on psycho-social and biological well-being. In turn, the fields of public health and psychology are beginning to recognize the potential of creative arts in promoting holistic healing and enhancing the QOL of people with chronic diseases (Stuckey & Nobel, 2010). Health behavior interventions that use creative arts can play a significant role in facilitating lifestyle changes that can become ingrained habits. Given that a patient's reporting of unmet needs is positively correlated with the high level of burden experienced by their informal caregivers (Siegel et al., 2006), such health behaviors offer a great potential for long-term success in healthy lifestyle changes throughout the cancer continuum for both cancer survivors and their informal caregivers.

1.2.4 Dance/movement Therapy and Cancer

Among the creative arts therapy programs, dance/movement therapy (DMT) is an evidence-informed treatment used with various cancer populations and survivors to enhance physical, emotional and spiritual wellbeing and overall QOL (Klagsbrun et al., 2005; Bradt, Shim, & Goodill, 2015). DMT employs dance and movement to help individuals examine, on a movement and verbal level, their emotional and physical responses, with the goal of facilitating self- integration and healing (Ho, 2005; Ho, 2006). The use of DMT has been shown to promote physical, emotional, and spiritual wellbeing (Cohen & Walco, 1999) among children, adolescents and adults (Sandel, Judge, Landry, Ouellette, & Majczak, 2005). There is a growing body of literature documenting the effectiveness of DMT as a clinical and evidence-informed intervention addressing psychological and psychosocial concerns of cancer survivors from various populations both in the U.S. (Ginsburg & Goodill, 2009; Bradt, Shim, & Goodill, 2015), and in other areas of the world, such as among breast cancer survivors in Hong Kong (Ho, 2005) and adult survivors diagnosed with different types of cancer in Australia (Oh et al., 2010)

1.2.5 DMT Pilot Study

This dissertation research is informed by results and feedback acquired during a pre-dissertation pilot study with Alaska Native cancer survivors ($N = 3$). The aims of the pilot study were to explore the cultural suitability, feasibility, and effects of using DMT as a means to integrate physical storytelling and traditional dance and creative movement in their post-treatment QOL. Results from standardized, quantitative measures completed by participants indicated positive impacts on their ratings of wellbeing, mobility, body image, expression of emotions, and self-care. These results add to and support existing studies on DMT's cross-cultural benefits and efficacy in promoting QOL and self- care among cancer survivors. Further, participants suggested offering a DMT group that is open to any survivor and caregiver, regardless of their racial or ethnic identification because they wanted to share their passion for

life and joy they experienced while participating in the DMT group. One pilot study participant put it this way:

“We want to dance outside in the sun for all to see as we celebrate life. . . Let us open the group to everyone!”

1.3 Research Design and Methodology

This dissertation study employed a participatory, convergent (parallel) mixed-method research design in two phases. During Phase 1, a small-N research design was used to assess the therapeutic effects of DMT among cancer survivors and caregivers. A total of sixteen purposefully sampled cancer survivors and caregivers living in the Fairbanks North Star Borough (FNSB) area participated in a single open group DMT intervention conducted over three months (twelve weekly sessions). Participants’ treatment outcomes and progress were quantitatively evaluated using standardized measures of body awareness, mental health functioning, social connectedness, and overall quality of life (QOL). Additionally, their subjective experiences while participating in the DMT intervention program were gathered qualitatively. These quantitative and qualitative data were analyzed separately and then integrated in the development of preliminary findings which were presented back to participants via a Follow-up and Findings Presentation (Phase 2), ten weeks after the last (12th) DMT session.

The Follow-up and Findings Presentation comprised the following: 1) re-administration of standardized outcome measures to assess longer-term effects of the DMT intervention (if any); and 2) participants’ clarification and co-interpretation of preliminary research results. With permission from participants, research results were shared with community stakeholders encompassing cancer navigators, oncologists, and members of the Cancer Committee Board of Fairbanks Memorial Hospital (FMH).

1.3.1. Community-based Participatory Research (CBPR)

A growing number of studies indicate that psychotherapy and other programs of interventions and services for communities are more effective when they are culturally congruent and tailored to meet the needs, values, beliefs, and context of the patient or population being served (Bernal, Jimenez-Chafey, &

Domenech-Rodriguez, 2009). This dissertation was informed by results of a pilot study on DMT among Alaska Native cancer survivors conducted during the summer of 2013. The pilot study applied a collaborative participatory based research approach (CBPR) in which cultural advisors and experts in the fields of psychology, dance/movement therapy, and public health contributed to developing the research design, methodology, selection of relevant measures, and recruitment process to ensure that the research process was clinically and methodologically rigorous as well as culturally appropriate and responsive.

For this dissertation, the student researcher (Dinghy B. Sharma) worked with cultural and community advisors from the Fairbanks Native Association (FNA), the Fairbanks Memorial Hospital (FMH) Cancer Navigators Program, and local cancer survivors and caregivers. These advisory members were chosen because of their expertise, local knowledge, and personal experience with a cancer diagnosis. They were involved in providing guidance on the recruitment process, survey questions used, logistics involved for the DMT sessions, and in the interpretation of preliminary research findings as well as in the dissemination of final research results. Informal and formal consultation meetings (in-person, phone, e-mail) were regularly conducted with the cultural advisors and academic expert consultants. This collaborative effort is described in depth in Chapter 3 (Methodology).

1.4 Research Rationale

Understanding cancer survivorship beyond primary care treatment for patients and their informal caregivers is a public health concern that impacts multiple stakeholders, including the individuals diagnosed with cancer, informal caregivers, family members and other loved ones, service planners, and health policy makers (Corner, 2008). There is growing literature that illustrates the multiple burdens experienced by cancer survivors and their caregivers resulting from their cancer diagnosis and treatment and its impacts on their physical, emotional, mental and social well-being.

Research on the QOL of cancer patients shows that both psychological and exercise-based interventions can help promote their overall wellbeing. Specifically, results from two meta-analyses on the effects of psychological interventions among cancer patients indicated that group therapy is at least as effective as individual therapy in producing moderate clinical effects in alleviating anxiety among

cancer patients (Sheard & Maguire, 1999). Similarly, a meta-analysis on the impacts of exercise interventions among cancer patients indicate some positive effects on overall wellbeing of cancer survivors (Conn, Hafdahl, Porock, McDaniel, & Nielsen, 2006).

In this regard, using dance/movement therapy (DMT) as an intervention would address both physical and psycho-social needs of cancer survivors and cancer caregivers. There is a growing recognition of the benefits to including creative modalities in clinical practice and public health (Stuckey & Nobel, 2010). However, scientific studies evaluating DMT's effects are limited, as noted by Justin (2013):

Few scientific studies have been done to evaluate the effects of dance therapy on health, prevention, and recovery from illness. Clinical reports suggest dance therapy may be effective in improving self-esteem and reducing stress. As a form of exercise, dance therapy could be useful for both physical and emotional aspects of quality of life. (p. 19)

Further, results from the pre-dissertation pilot study with Alaska Native cancer survivors indicated that participants physically and emotionally benefited from the DMT intervention. In particular, the pilot study incorporated dance movements and imageries culturally congruent with the Alaska Native culture of subsistence as a way of life and engaging in various outdoor activities. By tailoring the movement activities to reflect the local culture, participants felt comfortable to express themselves more openly through movement and sharing that ensued at the end of each DMT session. Results from the pre-dissertation pilot study support existing findings of a recent local needs assessment conducted among 309 breast cancer survivors across the State of Alaska. Survey respondents reported using and being greatly satisfied with complementary and alternative treatments such as exercise and meditation-based approaches (Brems, Barnett, Parret, Metzger, & Johnson 2013).

Several studies suggest that the use of DMT among cancer patients has many positive outcomes and health benefits (Ho, 2006; Bradt, Shim, & Goodill, 2015). Yet there is no known intervention of this type in the Fairbanks North Star Borough area that aims to alleviate both the physical and psycho-social burden experienced by cancer survivors and their caregivers. As such, DMT's potential in promoting QOL and

well-being for both cancer survivors and caregivers in Alaska has not been fully explored or systematically evaluated. Thus, there is growing need to critically evaluate, validate, and advance research in the engagement and intersection of dance therapy in clinical practice and in the dissemination of knowledge derived from these studies to benefit cancer survivors locally. It is within this context that this research study was undertaken.

1.4.1 Study Aims

The overarching goal of this dissertation was to address the need for holistic and community responsive interventions focused on cancer survivorship within a practice-based setting for cancer survivors and informal caregivers residing in the Fairbanks North Star Borough. More specifically, the research goal of the current study was to offer and evaluate the effects of a holistic, community-driven, culturally-grounded, and evidence-based intervention to enhance cancer coping and promote well-being and QOL.

1.4.2 Research Question

This dissertation explored DMT's benefits with cancer survivors and caregivers in a practiced-based setting. Specifically, it attempted to answer the question: "What are the therapeutic effects of DMT when used with cancer survivors and their caregivers?"

Using standardized measures, this study focused on identifying and understanding how DMT impacts various aspects of the participants' life, specifically: their mental health functioning (symptoms of depression, stress and anxiety), including

- Body awareness
- Perceived quality of life
- Group cohesion

Chapter 2: Literature Review

This chapter provides an overview of the current literature related to cancer, its incidence rates, and the burden of a cancer diagnosis on cancer survivors and their informal caregivers. It includes a brief description of who the cancer survivors and informal caregivers are, the intersection of health and quality of life (QOL), the creative arts and its role in enhancing QOL, and the definition of dance/movement therapy (DMT). The burden of cancer survivorship on patients and their loved ones and its impacts on the different aspects of their quality of life (adopted from Ferrell's conceptual QOL framework) are also discussed. Additionally, selected scientific studies that examined the benefits of the creative arts, particularly DMT, in enhancing the QOL among healthy and chronically ill populations are highlighted to illustrate DMT's potential benefits for various populations. It is acknowledged that the DMT literature reviewed and integrated in this chapter is not exhaustive but was selected primarily to establish the rationale for this dissertation study and to illustrate the researcher's experience in using this modality in a previous study. Specifically, DMT studies summarized and included in this literature review are limited to those conducted with cancer survivors. Towards the end of the chapter, the myriad research perspectives in psychotherapy are presented to help contextualize this dissertation's research approach as an effectiveness study.

2.1. Cancer Survivors and their Informal Caregivers

Conceptualizations of when a person is actually a "cancer survivor" vary, and include those who have completed their primary cancer treatment as well as those surpassing five years beyond their cancer diagnosis (Rowland, 2008). Organizations such as the National Coalition for Cancer Survivorship (NCCS), the National Cancer Institute's Office of Survivorship (NCI-OS), and the American Cancer Society (ACS) have adopted a broad definition of survivorship that empowers action and support for survivors and their loved ones, regardless of treatment completion and time-based milestones. The broadest definition is simply an individual who at any given point of his or her lifetime was diagnosed with cancer (Cancer Treatment & Survivorship, 2014). According to the NCCS, NCI-OS, ACS, and

others, a *cancer survivor* is any person diagnosed with cancer from the time of initial diagnosis until his or her death and it includes family, friends, and caregivers who are touched by a cancer diagnosis in any way.

As such, the broader definition encompasses all people touched by cancer, and it includes informal cancer caregivers. Informal cancer caregivers are unpaid individuals (such as spouses, other family members, friends and others) who voluntarily provide care and assistance to the survivor (Longacre, Ross, & Fang, 2013).

2.2. The Burden of Cancer Survivorship

The cancer burden continues to grow (Carlson & Bultz, 2003a) and impact the quality of life of patients, their families, and caregivers worldwide (Bultz & Carlson, 2005). Aside from the physical effects and financial costs associated with cancer, a significant portion of cancer patients and their caregivers experience emotional, social, and psychological distress throughout the trajectory of their illness and extending to long-term survivorship (Bultz & Carlson, 2005; Stanton, 2006). Thus, despite medical advances in cancer treatment, cancer is still often regarded as being “synonymous with death, pain and suffering” (Bultz & Carlson, 2005, p. 6440). Long-term cancer survival rates have resulted in a growing quest to elucidate and address the myriad issues surrounding cancer survivorship, cancer outcomes, and quality of life. Despite promising developments in cancer care and improvement in cancer survival statistics, the complexities of the often long-term and late effects of cancer and its treatments require a deeper understanding of cancer survivorship. The cancer literature is replete with reports of physical, psychological, spiritual, and social effects of cancer (Ferrell & Hassey-Dow, 1997). At least half of all cancer survivors develop late treatment side effects that include cognitive and sexual abnormalities alongside physical and psychosocial issues (Valdivieso, Kujawa, Jones, & Baker, 2012). Survivors also experience spiritual and financial challenges years after their treatment (Victorson et al., 2007). The unpredictability of health outcomes for cancer survivors post-treatment can create continuous anxiety and fear for themselves, their caregivers, and other loved ones (Corner, 2008). As one example of the anxiety

experienced by cancer survivors, sometimes referred to as “Damocles syndrome,” cancer survivors often fear relapse as well as developing other secondary health issues and life-threatening complications (Stephens, 2004).

2.2.1 Unmet Needs of Cancer Survivors and Caregivers

Cancer survivors frequently report that their needs with respect to cancer survivorship go unmet (Harrison et al., 2011). Many cancer survivors require follow-up care that includes regular cancer surveillance screenings, behavioral modifications, lifestyle changes, and psychosocial adjustments (Jacobs et al., 2009). Counseling and health promotion activities that include dietary change, regular exercise, and smoking cessation are also often recommended as aspects of follow-up care. In general, although cancer survivors generally report being satisfied with their post-treatment medical care, their acute and long-term physical, psychological, social, and spiritual needs are frequently unmet or receive little attention (Hewitt, Bamundo, Day, & Harvey, 2007; Harrison et al., 2011). These concerns, if not properly assessed, monitored, and addressed, could increase the likelihood of cancer recurrences, secondary illnesses, impaired quality of life (QOL), and even shorter survival time (Hewitt et al., 2007).

Similarly, informal caregivers of cancer patients also encounter numerous challenges. Informal caregivers report feeling unprepared and overwhelmed by the multiple demands placed upon them as they care for their chronically ill loved ones (Given, Given, & Sherwood, 2012). Often informal caregivers are required to perform skills pertaining to planning, problem solving, and negotiating the health-care system, but report feeling unprepared for these tasks (Given et al., 2012). It is estimated that at least 80% of cancer care takes place within the home and community setting, provided by informal caregivers (DeBenske, Guarnaccia, Cleary, Dinuer, & McTavish, 2008). Informal caregivers engage in numerous care activities, such as assessing and monitoring for side-effects from treatment and/or medications, acquiring knowledge related to direct care such as giving injections, wound care, use of ventilators, and emergency procedures (Given et al., 2012). Thus, the long hours and heavy responsibilities of being a caregiver can take a toll on their overall physical, emotional, spiritual, and social health. Specifically,

caregivers describe emotional fatigue, physiological distress, and/or deterioration of their own health as major unmet needs (Osse, Vernooij - Dassen, Schade, & Grol, 2006).

Caregiver issues impact the caregiver and the patient for whom they care. In fact, caregiver burden has been identified as one of the major barriers to meeting cancer patients' needs for concrete services (Siegel et al., 2006). In a study by Siegel and colleagues (2006), it was found that as the care demands of a cancer patient became more complex, caregivers found it increasingly difficult to cope and adequately address the patient's needs. The interplay between cancer caregiver and patient health warrants a better understanding of their similar and unique needs as a means to provide the necessary resources required to lessen burden of cancer, improve their QOL, and ensure positive health outcomes (DeBenske et al., 2008).

2.2.2. Cancer and Psychological Distress

Despite advances in cancer treatments and improvements in cancer survival rates, the need to alleviate the psychological distress caused by cancer diagnosis still remains problematic and oftentimes unmet for cancer survivors, their loved ones, and caregivers (Bultz & Carlson, 2005; Beatty, Adams, Sibbritt, & Wade, 2011). Significant levels of distress experienced by cancer patients and loved ones have been documented worldwide from North America, South America, several European countries, the Middle East, and Asia (Carlson & Bultz, 2003b). Among the primary challenges reported (aside from financial costs and physical concerns) include experiencing high levels of stress, emotional distress (Carlson & Bultz, 2003a), and significant disruptions in their lives. Reported distress has been related to lifestyle changes and accompanying psychosocial difficulties, problems in interpersonal relationships, social isolation, and the sense of losing control of one's life as survivors try to make sense of the reason for their cancer experience (Adler & Page, 2008).

Research consistently indicates a high prevalence of psychiatric illness such as anxiety disorders and major depression among cancer survivors, their family members and, caregivers (Carlson & Bultz, 2003b; Beatty et al., 2011). A cancer diagnosis can be a threatening event that can trigger intense uncertainty and fear about the future, provoking stressful reaction. Consequently, this psychological distress can result in deepening cancer symptoms, reduced adherence to treatment, lower QOL, and decreased survival rates

(Beatty et al., 2011). However, the stress of having a chronic illness such as cancer can affect people differently and can drive them to engage in a variety of coping behaviors. A survey study on cancer coping ($n = 603$) suggests that cancer survivors engage in an array of coping responses that include: 1) seeking/using social support, 2) focusing on the positive, 3) distancing, 4) cognitive escape-avoidance, and 5) behavioral escape-avoidance (Dunkel-Schetter, Feinstein, Taylor & Falke, 1992). From these coping patterns, Dunkel-Schetter and colleagues (1992) found that escape-avoidance types of coping were associated with greater emotional distress, while coping through seeking social support, focusing on the positive, and distancing was associated with less emotional distress. Similarly, other studies on cancer coping seem to indicate that certain coping strategies such as: 1) seeking out social support (Drageset & Lindstrom, 2003); 2) finding positive benefits in one's cancer experience (Carver & Antoni, 2004); 3) positive religious coping – such as looking to God for support and maintaining belief in an engaged God (Schreiber, 2011); and 4) facilitating emotional expression and/or active confrontation of experiences of anxiety brought about by a cancer diagnosis (Stanton et al., 2000; Schlatter & Cameron, 2010) are related to increased psychological wellbeing. Thus, addressing survivors' psychosocial concerns across the cancer trajectory (Stanton, 2006) is crucial given that the psychosocial factors can act “. . . either as moderating or mediating factors, to both symptom experiences, and patient outcomes, including survival” (Akin, Can, Aydiner, Ozdilli, & Durna, 2010, p. 400) and the patterns and types of coping cancer survivors use can actually influence their psychological and physical outcomes” (Glanz, Rimer, Viswanath, 2008).

2.3. Quality of Life (QOL)

As a construct, quality of life (QOL) includes objective and subjective dimensions of the human experience that encompass multiple domains ranging from life's basic necessities vis-à-vis one's current life conditions, evaluation of happiness, perception of meaning and sense of satisfaction and overall wellbeing (Felce, 1997; Snoek, 2000; Cantatero, Potter, & Leach, 2007). In some literature, QOL is used interchangeably with the concept of health status, such as the WHO definition of health as “a state of complete physical, mental and social well-being, and not merely the absence of disease or infirmity”

(World Health Organization, 1946, p.100; Smith, Avis, & Assmann, 1999, p.447). QOL is an important outcome used in evaluating health and social services (Skevington, Sartorius, & Amir, 2004). QOL measures have been useful for populations experiencing chronic disease as they provide a meaningful way to assess the impact of medical interventions and health care (Burckhardt & Anderson, 2003; Skevington et al., 2004). Despite its widespread use as an outcome measure, there is little consensus as to how quality of life is understood and defined (Smith et al., 1999) because its meaning varies across individuals and cultures (Sprangers & Schwartz, 1999).

With regard to cancer care, cancer survivors, their families, and caregivers report experiencing distress as well as significant impairments following their cancer diagnosis and throughout their cancer trajectory (Carlson & Bultz, 2003b). Like QOL, distress caused by cancer is also multifactorial and pertains not only to the physical effects and cancer treatments (Akin et al., 2010), but also the psychological, social, and spiritual components important for an individual's QOL (Gao, Bennet, Stark, Murray, & Higginson, 2010). Specifically, the American Cancer Society (2007) and QOL researchers (Ferrell, Grant, Funk, Otis-Green, & Garcia, 1998b) identify four domains of factors that interact and affect QOL. These domains include: 1) physical, 2) social, 3) spiritual and 4) psychological (behavioral, cognitive, emotional (Gao et al., 2010). Ferrell's QOL Model is illustrated below (Figure 2.1).

2.3.1. QOL and the Creative Arts

The holistic redefinition by the WHO that health is not merely an absence of disease but encompassing physical, mental and social wellbeing (Stuckey & Nobel, 2010) has led to a growing interest and appreciation of interventions that recognize the mind and body connection and promote QOL (Stanton, 2006). Furthermore, the fields of public health and psychology are beginning to recognize the potential of expressive and creative arts in promoting holistic healing and enhancing the QOL for people with chronic diseases (Stuckey & Nobel, 2010). It is estimated that 70 percent of daily communication takes place on a non-verbal level (Blom & Chaplin, 1988). Various art forms, such as the use of drawings, paintings, sculptures, music, psychodrama, dance, and movement are potent vehicles in facilitating

communication of ideas and emotions that are difficult to translate verbally (Graham-Pole, 2000).

Taken individually, or in conjunction with other therapies, these various creative art forms have been useful tools in the promotion of physical and mental health (Graham-Pole, 2000) by allowing individuals to transcend difficulties in verbal expression and to tap into these different forms of non-verbal communications.

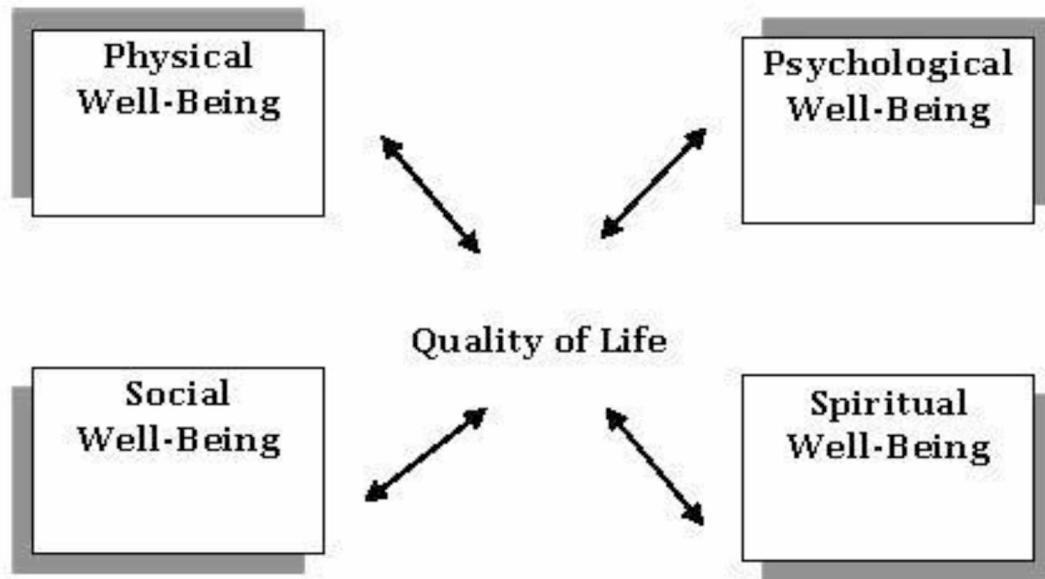


Figure 2.1 Ferrell's Quality of Life Framework.

The inclusion of the creative arts to complement conventional treatment in medicine and to promote mental health has been practiced worldwide (Kelly et al., 2011). Commonly referred to as complementary and integrative therapies, it has been estimated that about 70% - 90% of patients around the world have included some form of these therapies in their routine care (Kelly et al., 2011). For example, one study in Europe reported that almost 40% of 956 adult cancer patients surveyed across fourteen European countries reported using biologically based therapies (e.g., herbs, diet supplements) in conjunction with mind-body interventions such as movement, meditation, relaxation techniques, and support groups (Molassiotis et al., 2005).

Although the United States still lags behind in maximizing the potential of the creative arts in enhancing QOL among chronically ill populations, interest in its use has been increasing as of late (Kelly et al., 2011). This is evidenced by numerous studies exploring effects of engagement in the creative arts on patients' psychosocial and physical wellbeing, illustrating the intersection between creative expressions as a healing process, health, and wellness (Stuckey & Nobel, 2010). Promising studies indicate that the creative arts, when integrated as an adjunct to pharmacotherapy and traditional verbal therapies, were effective in the mental health recovery of individuals suffering from various forms of mental disorders (Körllin, Nybäck, & Goldberg, 2000). Some of the positive outcomes observed among psychiatric patients include improvements in the clinical, social, and occupational aspects of their lives, such as progress in their ability to express emotions, to form social relationships, and their attempt towards greater self-discovery and self-understanding (Lith, Schofield, & Fenner, 2013).

Numerous studies illustrate how engagement in the creative arts can promote the QOL of individuals across the lifespan, including those living with chronic illnesses (Stuckey & Nobel, 2010). Among these is a qualitative study conducted by Kelly, Cudney, and Weinert (2011) that investigated the role and meaning of the creative arts among 155 rural women from the Western United States who were dealing with various chronic illnesses, such as diabetes, arthritis, multiple sclerosis, and cancer. Salient themes identified from participants' responses indicated that engaging in creative arts was an important strategy the women employed to cope with their pain, to relax, to give back to others, and feel socially connected, which helped their overall wellbeing (Kelly et al., 2011). These findings are consistent with the results of another study with women ($n = 30$) living with disability and chronic illness in which they identified their engagement with various arts as contributing to their health and wellbeing (Reynolds & Prior, 2003). Specifically, the women attributed arts engagement to providing them with a meaningful activity and purpose, enhancing their creativity, allowing for expression of grief, and enhancing their identity and social networks (Reynolds & Prior, 2003).

Bungay and Vella-Burrows (2013) conducted a meta-analysis that reviewed 20 papers published between 2004-2012 on the use and effects of creative arts, such as music, dance, singing, drama and visual

arts among children and young people. The authors consistently found evidence across the literature that participation in these creative activities led to positive benefits related to sexual health, obesity, as well as mental and emotional wellbeing (Bungay & Vella-Burrows, 2013). Although the literature reviewed employed various methodologies – quantitative (6), qualitative (8) and mixed methods (6) -- all of the studies supported the notion that the use of creative arts can enhance health and facilitate behavioral changes such as improved “self-confidence, self-esteem, levels of knowledge and physical activity” (Bungay & Vella-Burrows, 2013, p.51). Similarly, studies among older populations indicate that engagement and expression in the creative arts aids in promoting healthy aging and offers protective factors, such as enhancing cognitive retention, nurturing resilience and strengthening social networks (McFadden & Basting, 2010). In particular, the creative arts have been found to be effective in promoting the wellbeing of individuals diagnosed with Alzheimer’s disease and dementia (Marcus, Kaufman, & Cohen-Shalev, 2009; Walsh et al., 2011).

2.4. Dance as a Healing Art

Throughout history most cultures have developed dances and rituals to represent their people and region (Rueppel, 2002). In ancient societies, dance and movement have been used to connect with the divine as a form of prayer and worship, for storytelling, recreating myths, and marking major life stages (Rueppel, 2002; Sandel et al., 2005). As a universal activity, dance has been connected to health and healing since ancient times (Block & Kissell, 2001; Ravelin, Kylma, & Korhonen, 2006; Murcia, Kreutz, Clift, & Bongard, 2010;). Dance is a powerful art form and creative means of expression because the product and the producer are intertwined in the dance itself (Sandel, Chaiklin, & Lohn, 1993). For many cultures, dance is a vehicle for “emotional expression, interaction, support and cohesion” (Murrock & Gary, 2008, p. 465) and thus fulfills a basic human need (Sandel et al., 1993). It was proposed that dance may foster the healing process “as a person gains a sense of control through a) spiritual components of the dance; b) mastery of movement; c) escape from stress and pain by a change in emotion, states of consciousness, and/or physical capability; and d) confronting stressors” (Sandel et al., 2005, p.302).

2.4.1. Dance and QOL

Numerous studies worldwide provide evidence that dance confers benefits to both healthy and chronically ill populations (Murcia et al., 2010). To cite a few, one exploratory study was conducted in Frankfurt, Germany among a total of 475 non-professional dancers. Participants were asked to answer an open-ended question on how dancing has influenced their well-being, complete three sets of questionnaires that explored their perceptions on benefits they derived from participating in a dance experience, their subjective emotional states after dancing, and their self-reported bodily pain (Murcia et al., 2010). Results indicated that participants reported that they found dancing to be an enjoyable experience and a multidimensional activity that helped promote their physical, emotional and social wellbeing (Murcia et al., 2010).

Culturally, specific dance interventions have also been found to be effective in promoting physical functioning among healthy African-American church women (Murrock & Gary, 2008) and among Greek males living with chronic coronary illness (Kalsatou, Mameletzi, & Douka, 2011). Findings from both studies indicated that the use of culturally specific dance interventions for various populations can help improve participants' health outcomes, such as decreasing obesity, improving bone mineral density, reducing stress (Murrock & Gary, 2008), and improving cardiovascular function and motivation to engage in physical activities (Kalsatou et al., 2011). Further, various studies have documented its therapeutic benefits for individuals with Parkinson's disease, depression, arthritis, fibromyalgia, heart issues, and cancer (Kalsatou et al., 2011; Murcia et al., 2010).

2.5. Dance/Movement Therapy (DMT)

Dance/Movement Therapy (DMT) is a "body-oriented form of psychotherapy that uses movement and dance intervention in combination of [sic] verbal expression" (Bräuninger, 2012, p. 296). As an orientation, it is based on the premise that the body, mind and spirit are interconnected (Aktas & Ogce, 2005), providing a holistic worldview on health that is congruent with most indigenous belief systems (Monteiro & Wall, 2011). The American Dance Therapy Association defines DMT as "the

psychotherapeutic use of dance and movement in a creative process, which furthers the individuals' physical, emotional, cognitive as well as social integration" (About Dance/Movement Therapy, 2015).

2.5.1. DMT with Healthy and Chronically Ill Populations

Payne (2009) conducted a mixed-methods design pilot study from 2004-2007 through the National Health Service in the United Kingdom to explore the use of DMT as a group of intervention for 12 weeks for patients reporting medically unexplained symptoms (MUS) in primary care. Using a mixed-methods research design, Payne's study explored participants' wellbeing, problems/symptoms, life functioning, and risk using two outcome measures: COPE, an outcome measure used in counseling in primary care in the UK and the MYMOP, a patient-generated measure that focuses on body symptoms and an activity from which they cannot perform because of their symptoms (Payne & Stott, 2010).

Operating from a framework that the mind, self, and body are interrelated, DMT was posited to be helpful in fostering better understanding of body symptoms in relation to the patients' awareness of the meanings behind their bodily experience. The premise was that patients who are growing in their awareness are able to change their perceptions of their physical experiences, and by so doing, lead to improvement in their lifestyle choices and behaviors (Payne, 2009). The findings of the study revealed that the DMT intervention significantly decreased or helped relieve patients' reported symptoms as evidenced by significant mean changes for the entire sample for both outcome measures (Payne, 2009). There was a noted a significant reduction among participants' (n = 17) perceived symptoms of distress from baseline to follow-up with medium to large effect sizes in the various domains of the two outcome measures (Payne & Stott, 2010). Specifically, for the CORE measure, only the risk domain achieved a small effect size (0.31) while the other variables (wellbeing, problems, function) had effect sizes that ranged from 0.60 - 0.70. Additionally, qualitative data supported quantitative findings as participants expressed an increased sense of well-being (Payne & Stott, 2010).

2.5.2. DMT with Sexually Abused Children

Sharma (2006) conducted a pioneering DMT study in the Philippines that examined its impacts on the body image and self-concept of five purposefully sampled sexually abused girls (ages six to nine) institutionalized in a government shelter. Data-gathering methods employed repeated measures and collection of both quantitative and qualitative data. Outcome measures used included: 1) Piers-Harris 2 Self-Concept Scale for Children, 2) A Movement Indicator Checklist for Sexually Abused Children (movement rating scale developed by a dance therapist), and 3) a Sentence Completion Questionnaire. Specific sessions were also videotaped for content and movement analysis. Information gathered from the videos was integrated with themes from the primary investigator's group DMT session notes.

The DMT sessions were conducted in three phases:

- 1) Initial Phase – two weekly DMT sessions;
- 2) Treatment Phase – twice a week DMT sessions for three weeks; and
- 3) The Final Phase – once a week DMT measures.

The outcome measures were administered on the 1st, 8th, and 10th DMT sessions and at follow-up two weeks after. The 1st, 8th, and 10th DMT sessions were videotaped and de-identified before being sent to raters trained in movement analysis in the United States. These three tapes were independently rated by two graduate DMT students from Antioch and Drexel Universities under the supervision of Sharma's DMT consultant, Dr. Sharon Goodill, former Director of the DMT Education at Drexel University. The primary investigator then grouped the movement items, rated by the researcher into movement clusters, which were used to describe the behavioral characteristics observed from participants and helped inform the qualitative analysis.

Findings showed that participants' overall self-esteem scores improved at their final DMT session and at the two-week follow-up. Further, participants reported increased scores for five out of the six self-esteem domain scales (1) Behavior Adjustment, 2) Physical Appearance, 3) Freedom from Pain, 4) Popularity, and 5) Happiness). Only the domain of Intellectual and School Status for self-esteem did not

change. Lastly, participants' movement ratings and subjective DMT experience indicated that their body image and ability to access and express certain repressed memories and emotions related to the sexual trauma they experienced improved (Sharma, 2006).

2.5.3. DMT and Cancer

Common cancer treatments (surgery, radiation, chemotherapy) and their accompanying side-effects often pose immediate, long-term and late side effects including fatigue, external and internal trauma on the body, lymphedema, cognitive decline, and other symptoms leading to pain and suffering (Ho, 2005). As medical advances in cancer treatment lead to better and improved treatment outcomes, trends in cancer care and survivorship are shifting from an emphasis on acute and curative approaches toward providing supportive and palliative care to cancer survivors and their loved ones (Daykin, Bunt, & McClean, 2006).

Comprehensive cancer centers recognize the need for an inter-disciplinary and holistic approach for cancer care and survivorship (Cohen & Walco, 1999) and the benefits of using the creative arts to improve QOL (Daykin, Bunt, & McClean, 2006; Madden, Mowry, Gao, Cullen, & Foreman, 2010). There are numerous studies documenting how complementary and integrative therapeutic interventions (use of the creative arts therapies such as dance, music, drama, visual arts) with various cancer populations have resulted in enhanced physical and psychological wellbeing with various benefits including decreased feelings of negative affect (as anger, depression and anxiety) promotion of spirituality, self-expression and communication (Puig, Lee, Goodwin, & Sherrard, 2006), positive mood and relaxation (Daykin, et al., 2006), improvements in vigor, and physical vitality (Dibbell-Hope, 2000).

Complementary and integrative therapies have shown promise with pediatric cancer patients as illustrated by a mixed-methods pilot study conducted in the U.S. in 2010, which investigated the effects of creative arts (DMT, music therapy and art therapy) on the QOL of sixteen children receiving chemotherapy (Madden et al., 2010). Study findings revealed that the intervention helped alleviate symptoms of pain, nausea, and emotional distress, and improved overall subjective wellbeing, further

lending support to the clinical significance of incorporating these therapeutic approaches in cancer healing process (Madden et al., 2010).

2.5.3.1. DMT and Breast Cancer

The majority of the literature on the use of DMT with cancer populations has largely focused on breast cancer survivors. In one pilot study, an integrated expressive arts group therapy was used as a complementary treatment for 18 breast cancer survivors in various stages of their cancer trajectory (Klagsburn et al., 2005). The women underwent an intensive multi-modal one-day retreat that combined activities involving creative movement, focusing, writing and visual arts. Several quantitative and qualitative measures were used to examine various aspects of participants' wellbeing such as spiritual, physical, emotional, cognitive, creative, and social. A 6-week post-group follow-up telephone interview was conducted wherein participants reported that they found the intervention to be beneficial in enhancing their overall QOL (Klagsbrun et al., 2005).

Another study on DMT with breast cancer survivors was a pilot 12-week DMT program conducted in two cancer centers in Connecticut (Sandel et al., 2005). Using an RCT design and with a wait-listed control group that crossed over to active treatment at 12 weeks, thirty-five women less than five years past initial treatment completed the DMT program. The program used "The Lebed Method, Focus on Healing through Movement and Dance," which is an accepted dance program developed specifically for breast cancer patients (Sandel et al, 2005). The intervention was conducted by a board-certified professional dance/movement therapist and integrated elements of DMT with the Lebed method. Outcome measures included Breast Cancer Quality of Life (FACT-B), the shoulder range of motion (ROM), and the Body-Image Scale. Significant improvements were noted on the FACT-B, Shoulder ROM and Body Image measured among participants in the intervention group compared to the wait-list cross group. The same benefits were found for the wait-list group when they began the treatment.

Findings illustrated DMT's effectiveness in improving QOL and shoulder function among breast cancer survivors. Specifically, the change score QOL means of the women who participated in DMT

after 12 weeks of treatment, with a large effect size (Cohen's $d = 0.89$) (Sandel et al., 2005). Using the standard set by the Centre for Evidenced-Based Medicine (2009), results of this study were confirmed by another group of researchers in a separate systematic review (Bicego et al., 2009).

In China, Ho (2005) conducted a qualitative study that explores the cross-cultural suitability and efficacy of DMT as an intervention among Chinese breast cancer patients ($n = 105$) in Hong Kong who were undergoing or just completed radiotherapy. Participants took part in a total of nine hours of DMT intervention spread across six DMT sessions. Findings indicated that participants preferred DMT compared with other psychosocial forms of intervention for its combined physical and psychosocial benefits. Benefits described included alleviating the side effects of radiotherapy leading to better sleeping patterns, increased motivation to exercise at home, emotional release through movement, and enhanced cancer coping. In another DMT study, Ho (2005) examined DMT's effects (pre vs. post) on the stress level and self-esteem of 22 Chinese cancer survivors. Participants attended a 90-minute weekly DMT session for a period of six consecutive weeks and completed the two outcome measures (Perceived Stress Scale and the Rosenberg Self-Esteem Scale) before and after their completion of the DMT program. Additionally, they filled out an evaluation form at the end of their last session to assess their satisfaction with the DMT program (Ho, 2005). Study results demonstrated that there was significant reduction in participants' perceived stress. The standardized effect size index (d) was 0.49, which is a medium effect size (Sullivan & Feinn, 2012). Although not statistically significant, a positive change in participants' self-esteem scores was noted. The standardized effect size was also medium ($d = 0.46$) (Ho, 2005).

Because DMT works on a whole body and hinges on the assumption of mind-body connectedness, its holistic approach offers a unique way to address both the physiological and psychological issues experienced by cancer patients (Ho, 2005). DMT as an evidence-based treatment has been used with various cancer populations and survivors for enhancing social support, improving quality of life, alleviating anxiety, stress and depression symptoms, and improving physical functioning (Klagsbrun et al., 2005; Bradt, Goodill & Dileo, 2011). Research shows it promotes physical, emotional, and spiritual wellbeing among children, adolescents, and adults (Cohen & Walco, 1999; Sandel et al., 2005).

Indeed, there is growing evidence that supports the therapeutic benefits of dance and effectiveness of DMT in the treatment of physical and psychological conditions (Koch, Kunz, Lykou & Cruz, 2014; Bradt et al., 2011). A recent meta-analysis documented DMT's effectiveness from 23 primary trials ($N = 1078$) involving 15 clinical population samples (three of which were with breast cancer survivors) as well as sub-clinical and non-clinical population samples (8). Results from the meta-analysis suggest that DMT decreases clinical symptoms related to mood (depression and anxiety), increases QOL, and promotes body image and interpersonal competence (Koch et al., 2014).

2.6. Research Perspectives in Psychotherapy

Exploration of the intersection of the arts, psychology, and public health systematically and scientifically can be a complex process because these disciplines include a broad range of topics, encompass diverse populations, and use differing theoretical orientations and terminologies to describe research processes and outcomes (Raw, Lewis, Russell, & MacNaughton, 2012). One of the major debates regarding research that involves these sectors stems from the call for more evidence-based literature on the impact and outcomes of health-related interventions stemming from these disciplines. Experts in these fields often disagree on: (1) what constitutes "evidence," and (2) what methodology best captures this evidence (Raw et al., 2012).

The literature is saturated with competing worldviews regarding the validity and benefits of using quantitative and experimental research approaches over qualitative research and quasi-experimental processes when trying to measure outcomes related to the creative arts and health (Stuckey & Nobel, 2010; Raw et al., 2012). While some argue that a biomedical model and the use of scientific terms and rigorous research methodologies is the gold standard of evidence-based research (Roche & Christopher, 2009), others counter that the use of medical and experimental research models are actually inappropriate and impractical because arts and health practices lead to different kinds of outcomes that do not easily fit into strictly controlled experimental research models (Raw et al., 2010).

In evaluating outcomes of a certain form of psychotherapy intervention, academics agree that the corresponding research strategies to be employed depend highly upon the research questions and specific impacts of treatment outcomes being measured (Lutz, 2003). Flynn (1997), for example, identified four factors considered in psychotherapy evaluation. These include: (1) efficacy, (2) effectiveness, (3) client progress, and (4) costs. Howard, Krasner and Saunders (2000) outlined three research perspectives for assessment: (1) efficacy, (2) effectiveness, and (3) efficiency. They argue that each of these aspects and perspectives have their own purpose, research strategies, and evaluative frame of reference and interpretative context (Howard et al., 2000; Lutz, 2003).

2.6.1. Efficacy Studies

Efficacy studies attempt to determine whether the treatment works in a controlled experimental laboratory setting and better than other interventions commonly used as the standard of care (control group) (Flynn, 1997; Howard et al., 2000; Lutz, 2003). Clinical researchers mainly focus on efficacy studies and primarily employ scientific methodological techniques and randomized controlled trials (RCT) with homogenous samples to determine whether treatment outcomes are superior to outcomes experienced by the control group or better than other interventions (Flynn 1997; Howard, et al, 2000; Lutz, 2003). Efficacy studies are designed to control extraneous variables, such as treatment parameters, therapist's training, participant selection, and treatment dose, duration, and type (Howard et al., 2000). The emphasis of such studies is on monitoring and safeguarding internal validity (Lutz, 2003) and developing empirically supported treatment manuals for specific psychological disorders (Roche & Christopher, 2009). Efforts to standardize and operationalize treatment with greater accuracy through controlled clinical trials (Howard et al., 2000), along with the emphasis on evidence-based approaches in psychotherapy, has given rise to *Empirically Supported Treatments (EST)*, a standard of care and gold standard in research (Roche & Christopher, 2009). ESTs primarily employ rigorous methodological research techniques such as the use of RCT to develop treatment manuals that are “a) superior to a placebo or other treatment or (b) equivalent to an already established treatment, in at least two “good” group design studies or in a series of single case design experiments conducted by different investigators” (Roche & Christopher, 2009, p. 2).

Critics of efficacy research argue that placing so much emphasis on controlling for threats to internal validity comes at a price, specifically to the study's external validity. The cost is that generalizability across clients, settings, and clinicians is greatly limited (Lutz, 2003), for as interventions are increasingly rigorously defined and developed in a more selective sample, the less applicable they tend to be to routine practice and real-world conditions (Margison et al., 2000). Although there are studies that indicate that ESTs in particular work in actual practice (Roche & Christopher, 2009), there are growing criticisms that ESTs tend to: (1) overemphasize the use of short, manualized treatments that focus on specific effects; and (2) tend to be limited in terms of their application to diverse populations (culture, race, co-morbidity) (Roche & Christopher, 2009). As such, researchers are arguing that placing RCTs and ESTs on a pedestal as the gold standard in clinical research is "illusory" and a form of "empirical imperialism" (Castonguay et al., 2013, p. 87).

2.6.2. Effectiveness Studies

In contrast to efficacy studies, effectiveness research in psychotherapy examines how a certain psychological intervention works in actual practice and explores the intervention's beneficial results when administered in actual clinical settings (Flynn 1997; Howard et al., 2000; Klagsbrun, et al., 2006) and at what costs (Flynn, 1997). Practitioners and researchers alike recognize the importance of translating and systematically assessing clinical treatment protocols and innovations that were often developed in controlled, laboratory environments to real-world practice settings. Proponents of effectiveness studies emphasize their more "practice-oriented research" approach that calls for a bottom-up perspective, both in understanding clinical process and in treatment outcomes (Castonguay et al., 2013).

In effectiveness studies, the delivery of a psychological intervention may be one component of a larger integrated system of health and social services provided to clients (Howard et al., 2000). Unlike efficacy research, effectiveness studies recognize that patients who avail themselves of clinical services are rarely homogenous, for they often present an array of psychosocial and health concerns (Howard et al., 2000). Effectiveness studies allow for greater flexibility in the delivery of treatment parameters (e.g., dosage, duration, length) as it is recognized that outcomes will often be mediated by resource availability, the

client's degree of motivation or other uncontrollable issues (Howard et al., 2000). Thus, the research focus for this approach is on the treatment's application in actual practice wherein external validity is afforded premium importance (Flynn, 1997; Lutz, 2003). Professionals in the field of mental health service are usually those who conduct effectiveness studies (Flynn 1997; Howard et al., 2000), and they primarily employ research methodologies using quasi-experimental or systematic naturalistic designs (Flynn 1997; Lutz, 2003).

“Practice-based research” is an example of an effectiveness study that acknowledges the importance of enhancing both research and practice through methodologies wherein clinicians “perform activities that are simultaneously and intrinsically serving both clinical and scientific purposes” (Castonguay et al., 2013, p.87). The goal of practice-based research is to describe a client's typical response to receiving a certain type of psychological intervention, and to identify the treatment factors that best explain or predict the client's response (Howard et al., 2000).

2.6.3. Efficiency Studies

While both efficacy and effectiveness studies are treatment focused, efficiency studies attempt to address how the intervention impacts a particular client and monitor his/her progress during treatment (Flynn 1997; Lutz, 2003). The quest to ensure that treatments are working for patients and that patients are improving has led to the practice of monitoring a patient's progress and evaluating treatment outcomes in behavioral healthcare organizations and clinical practice (Azocar, McCulloch, McCabe, Tani, Brodey, 2007). This research strategy of focusing more on the “(real time) improvement of the actual treatment as implemented and the development of tools in order to achieve the task” is called practiced-based research (Castonguay et al., 2013, p.88). Practicing clinicians are often most interested in this type of research, in which the focus is on measuring how efficient an intervention is for a particular individual as well as what is happening with him/her while undergoing an intervention (Flynn, 1997). In this approach, data is collected for certain variables from patients at intake. These variables are subsequently used to monitor and predict an individual's pattern of response and progress while participating in a psychotherapy intervention (Howard et al., 2000; Lutz, 2003). By monitoring the patterns of change in an individual

through the use of outcome measures, clinicians are able to better monitor how well a client is responding to a course of treatment (Lutz, 2003) and account for specific variables that may mediate and moderate the changes observed in a client (Howard et al. 2000). Lutz (2003) advocated for the integration of a patient-focused strategy to supplement and enhance the evidence gathered from efficacy or effectiveness research citing the limitations of both approaches that tend to compromise internal and external validity (Thurin & Briffault, 2006).

Among the advantages of monitoring individual treatment outcomes include the ability to: (1) assess a treatment's effectiveness, (2) closely examine specific patient or client characteristics vis-à-vis his/her response to the treatments, and (3) predict and group individuals based from their treatment response, then assessing clinical patterns and consistencies that may observed in a group (Lutz, 2003). Further, the ongoing monitoring of an individual's progress allows for a comparison of process and final outcomes. It affords providers information on how to best deliver specific therapies based on individual's responsiveness to particular treatments or interventions (Lutz, 2003).

In summary, there are different perspectives and methodologies used in the evaluation of psychotherapy outcomes. The two research approaches most commonly used are efficacy and effectiveness studies (Lutz, 2003), which are focused on addressing questions specific to treatment outcomes and benefits, while efficiency studies place an emphasis upon individual treatment effects and progress (patient-focused) and the costs involved in implementing the psychological intervention in real-world conditions (Flynn, 1997). Efficacy studies, through use of RCTs and development of ESTs, promote high internal validity but often do not reflect real-world situations wherein numerous variables may mediate and moderate treatment effects. Effectiveness studies offer high ecological validity but may incur unreliable results due to numerous uncontrolled conditions (Thurin & Briffault, 2006). To help address these limitations, there is a call to integrate a greater patient-focused perspective (Lutz, 2003), within an interdisciplinary approach that employs mixed methodologies to fully capture the distinct and subtle processes and outcomes involved in assessing and evaluating impacts of health practices and psychotherapy interventions (Thurin & Briffault, 2006; Raw et al., 2012). This is particularly relevant

when evaluating the effectiveness of a psychological intervention that incorporates the creative arts such as DMT.

Overall, the body of research reviewed and presented in this chapter provides the context and rationale for this dissertation study's research design. The existing body of literature on cancer, QOL, DMT, and the various research approaches in psychotherapy, provides impetus for this dissertation study which aims to help address some of the unmet psycho-social, emotional and physical needs of cancer survivors and caregivers in Fairbanks, Alaska.

Chapter 3: Pilot Study

3.1. Study Overview

A pilot study was conducted in preparation for a full dissertation study. The main goal of this pilot study, entitled “Physical Story-Telling: Exploring the use of Traditional Dance and Creative Movement Expression as a Tool for Healing and Empowerment among Alaska Native Cancer Survivors,” was to explore the feasibility, cultural appropriateness, and therapeutic effects of integrating Alaska Native traditional dance/movements and dance/movement therapy (DMT).

The pilot study was conducted to achieve the following three aims: 1) explore Alaska Native cancer survivors’ conceptualization of the significance of traditional dance and creative movement to their cancer survivorship; 2) assess the therapeutic effects of DMT on participants’ overall QOL and well-being; and 3) inform a larger treatment-control DMT intervention study.

3.1.1. Community-Academic Partnership

The pilot study applied the principles of community based participatory research (CBPR) in order to promote a collaborative research process and culturally sensitive methodology (Israel et al., 1998).

3.1.2 Funding

The study received funding (\$1,200) from the University of Alaska, Anchorage (UAA) Alaska Native Community Advancement in Psychology Program (ANCAP) through its “Outstanding Graduate Student Community Service/Research Award” for Spring 2012.

3.2. Research Design and methodology

3.2.1. Ethical Procedures

The study received UAF-Institutional Review Board approval in April 2013 and supportive oversight from the Fairbanks Native Association (a non-profit organization providing services and research oversight to over 6000 Alaska Native residents in the Fairbanks North Star Borough Area).

3.2.2. Participants

Participants were members of the Hopeful Connections: Cancer Support Group for Alaska Native Cancer Survivors and their Loved Ones. Hopeful Connections is a community-academic partnership of the Fairbanks Native Association and the University of Alaska, Fairbanks (UAF) Center for Alaska Native Health Research (an NIH-funded center focused on reducing Alaska Native health disparities).

3.2.2.1. Inclusion and Exclusion Criteria

Participants were adult Alaska Native cancer survivors (18 years old and older) who self-identified as being willing and able to participate in gentle dance and movement activities for an intervention period of 10 weeks. Individuals were not eligible to participate if they self-identified as being pregnant, having undergone a major surgical procedure within the last five months, and/or had a severe physical condition that would prevent them from performing their normal tasks of daily living.

3.2.3. Study Design and Treatment Dosage

A quasi-experimental design involving multiple observations and repeated measures of a single small group was conducted. A total of eight (8) once weekly DMT sessions were conducted between May-July 2013, followed by a two-week follow-up. On average, each DMT session lasted 60-90 minutes, with a range of three (3) to six (6) participants in attendance. Each DMT session comprised four components, including 1) warm-up, 2) creative movement exploration, 3) cool-down, and 4) sharing and evaluation.

3.2.3.1. Measures Administered

In addition to a demographic questionnaire, a survey comprising three standardized measures was administered at each DMT session. Measures included: 1) Outcomes Measure (OQ-45) to measure symptoms of distress particularly depression and anxiety; 2) Functional Assessment Cancer Treatment – General (FACT-G V.4) to measure QOL and well-being across four domains: physical, social/family, emotional and functional; and 3) Multidimensional Assessment of Interoceptive Awareness (MAIA) to measure body awareness that may contribute to improvements in clinical outcomes (Mehling et al., 2012). These measures are further described in Chapter 4, Methods. In addition to the quantitative measures,

participant and researcher perspectives were qualitatively recorded as a means to document feedback and observations regarding the DMT intervention and triangulate results and findings.

3.2.4. Data Management and Analysis

Survey responses were coded, entered into a database, and scored according to instructions for each measure. Analysis was conducted using SPSS v.18 and involved computing descriptive statistics to derive means and change scores for each participant.

3.3. Researcher's Training and Expertise

All sessions were facilitated by the primary investigator who had already earned master's degrees in both Counseling and Clinical Psychology when the research was undertaken. The researcher was experienced in running group therapy sessions that integrate dance and movement modalities. Although the primary investigator is not professionally licensed as a DMT practitioner, she has attended numerous workshops on DMT at the annual conferences organized by the American Dance Therapy Association (ADTA). The primary investigator has also pioneered the use of DMT in counseling work in the Philippines. As a student member of the International Panel of the ADTA, she was chosen to give oral presentations at two of its annual conferences. Her thesis for her MAED in Guidance Counseling was on the use of DMT as an adjunct in counseling sexually abused children in the Philippines, an abridged version of which was published by the Dance Movement Therapy Association of Australasia in 2005. Additionally, she has organized and attended two DMT conferences in the Philippines that were facilitated by professionally certified DMTs, such Na'ama Shklar (Israel) and Sharon Chaiklin (U.S.), one of the founding members and former president of ADTA.

3.4. Results and Interpretation

3.4.1. Pilot Study Participants

Six (1 male, 5 female) survivors and caregivers participated in the pilot study. Participants' ages ranged from 35-66 years old. Two participants were caregivers, and four participants were cancer survivors, including survivors of breast cancer (N = 2); sinus/neck cancer (N = 1), and breast and kidney

cancer (N = 1). Time since diagnosis varied, ranging from as far back as 1993 to currently undergoing chemotherapy treatment. In terms of ethnicity, participants represented were Gwichin ($n = 2$), Athabascan ($n = 2$), and two participants did not specify their tribal and ethnic affiliation. Education level varied, with three completing some college or technical training. One caregiver opted out of completing the study measures. Results reflect responses from the three participants who were able to attend and complete measures for at least three sessions (time points).

3.4.2. Outcomes Questionnaire-45 (OQ-45)

The OQ-45 measures functioning in three domains: Symptom Distress, Interpersonal Functioning, and Social Role. In addition, it assesses for suicide risk, substance abuse, and potential work violence. The higher an individual's total score, the more a person is reporting a number of symptoms of distress, as well as difficulties with interpersonal relationships, social role and overall quality of life (Lambert, 2012).

As shown in Table 3.1, all three participants showed reliable clinical improvement (defined as decreased scores of 14 points or greater) between baseline and their last DMT session. This indicated that as they participated in the DMT interventions, they reported lesser symptoms of distress, improvements in their relationships, and better QOL.

Table 3.1 *Participants' Total OQ-45 Scores over 3 time points*

Participant	Baseline	Mid-point	Final
1	120	118	105
2	108	63	62
3	87	86	63

3.4.3. Functional Assessment Cancer Treatment General (Fact-G V.4)

Higher scores on the Fact-G indicate higher ratings of participants' subjective QOL. Two of the participants' ratings showed that their final subjective QOL ratings were better than their baseline QOL scores, while one participant reported a decreased in QOL at mid-point and a very slight increase of QOL (2-point difference from baseline score) at the final DMT session (Table 3.2). Figure 3.1 graphically

illustrates the subjective QOL scores by each participant, over the course of the DMT intervention.

3.4.4. Multidimensional Assessment of Interoceptive Awareness (MAIA)

Participants' body awareness scores as measured by the eight scales of the MAIA indicated that two individuals improved in the following abilities: 1) notice body sensations (Noticing), 2) focus and sustain their attention on their body experiences (Attention Regulation), 3) regulate distress by attending to body sensations (Self- Regulation), 4) actively listen to body for insight (Body Listening), and 5) experience body as being safe and trustworthy (Trusting) (Mehling et al., 2012). One participant did not appear to show any improvement in their body awareness scores from baseline to final session. For the Not Distracting and Not Worrying scale, two of the participants showed a change of scores in the opposite direction. One individual's scores indicated improvement in their ability to not worry and not to avoid experience of bodily discomfort, while the other's indicated an increased tendency to worry and used avoidance when encountering uncomfortable body sensations. Table 3.2 provides a summary of participants' MAIA scores at baseline and final DMT sessions.

Table 3.2

Participants' Total FACT-G Scores over 3 Times Points

Participant	Baseline	Mid-point	Final
1	63	59	93
2	101	86	103
3	74	87	95

FACT-G Score over Time

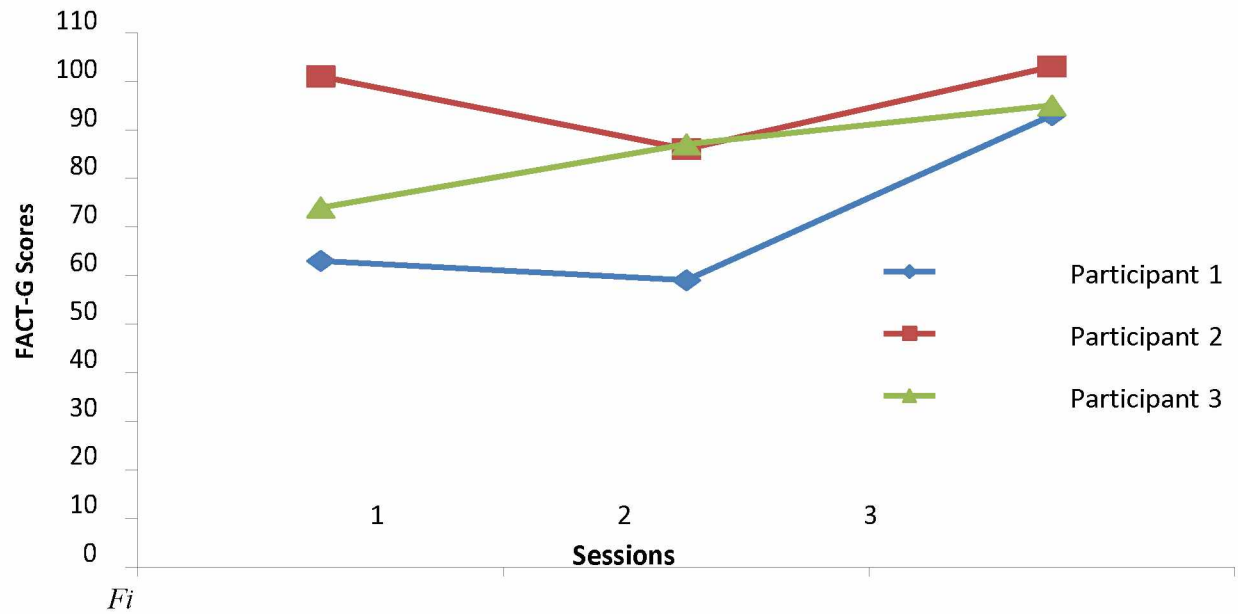


Figure 3.1 Participants' FACT-G Total Scores Over 3 time points

Table 3.3

<i>Participants' MAIA Mean Scale Scores at Baseline and Final DMT Intervention</i>						
MAIA Scales	Participant 1		Participant 2		Participant 3	
	e	Final	Baseline	Final	Baseline	Final
Noticing	3.25	4.00	3.25	3.86	4.75	4.75
Not Distracting	4.00	1.67	1.33	3.33	2.00	2.00
Not Worrying	1.67	2.33	3.00	2.67	2.33	2.33
Attention Regulation	0.71	3.57	2.29	3.29	2.58	2.57
Emotional Awareness	4.60	4.00	3.60	3.8	3.40	3.40
Self-Regulation	2.50	3.75	3.00	3.36	3.75	3.75
Body Listening	1.00	3.67	2.00	3.00	3.00	3.00
Trusting	3.00	3.70	3.00	5.00	5.00	5.00

3.5. Challenges and Lessons Learned

Qualitative feedback from participants and observations noted by the researcher provides helpful assessment about the DMT intervention and evaluation process that was used to inform the full dissertation.

Importance of Community-Academic Partnership: Working within a strong partnership (Hopeful Connections and FNA) facilitated participant recruitment and their trust in the research process. At times participants would even remind the researcher to administer the measures, asking: “Don’t we need to fill out some forms?” Implications: Future work would be conducted under the guidance of a cultural advisory group comprising trusted organizational and community leaders.

Feasibility of administering measures. Participants’ feedback about the readability and content of the measures indicated that they were easy to understand and complete. Nevertheless, participants tended to randomly skip questions, noting that 12-point Arial font was too small. Implications: Important to monitor surveys for completeness, and to provide in a larger, user-friendly font.

Attendance. DMT session scheduling needed to be flexible, and absences were a norm due to scheduled treatments, conflicting obligations, travel, and illness. Implications: Future research should incorporate a larger sample, and as feasible, increase the number of DMT sessions provided.

Methodological flexibility. The researcher/DMT leader constantly needed to adjust to the needs and preferences of participants. For example, one participant who was undergoing chemotherapy infusion participated in the DMT sessions while lying on a couch. Further, although the intervention was intended for cancer survivors, participants often invited family members, friends and/or caregivers to take part in the sessions. Implications: Constant monitoring of needs and preferences is vital. Future research should either allow non-cancer survivors to be participants, or set rules and protocol for adhering to strict inclusion criteria.

Cultural Congruence versus non-traditional ways. With regard to music preferences and movement repertoire, participants requested an eclectic blend of world music (as opposed to

traditional Alaska Native music) wherein they could incorporate activities that were both inspired by cultural practice (fishing, hunting, berry-picking) and non-cultural life (driving, stirring/ and cooking, swimming, reaching for something, ice-skating, etc.). Participants felt that the group should be open to all survivors and loved-ones, regardless of having a tribal affiliation. As a participant expressed: “We want to dance outside in the sun for all to see as we celebrate life. . . Let us open the group to everyone!”

Implications: Future DMT sessions should offer a wide array of music and movement options (both traditional and non-traditional). Future recruitment should not be limited to individuals who self-identify as being Alaska Native.

Positive Reactions to DMT. Finally, corroborating the quantitative results, participants reported positive effects of DMT on their physical mobility, feelings of wellbeing, body awareness and range of emotional expressions. Implications: The DMT sessions were indicated by the small sample to be enjoyable, and beneficial.

Chapter 4: Methodology

4.1. General Overview of Research Study Design

The study employed a mixed-methods research approach that explored and systematically evaluated the therapeutic effects of a Dance and Movement Therapy (DMT) intervention with a total of 16 cancer survivors and informal cancer caregivers. A mixed-methods approach was determined appropriate to gain an integrative understanding of the research problem, triangulate results, and examine the processes and experiences of cancer survivors and caregivers along with the DMT intervention outcomes (Plano Clark, 2010). Specifically, this mixed-methods study used a convergent (parallel/concurrent) design in which quantitative and qualitative data were gathered simultaneously in both phases of research (Phase 1: DMT Intervention, Phase 2: Follow-Up and Findings Meeting) to address the study aims (Cresswell & Plano Clark, 2011). The resulting two sets of data were presented, compared, and integrated for analysis and discussion.

4.1.1. Research Questions

This study investigated the therapeutic benefits of DMT among cancer survivors and informal cancer caregivers in Fairbanks North Star Borough (FNSB) on the following dependent variables:

- 1) Mental Health Functioning (mood, anxiety, stress)
- 2) Body Awareness
- 3) Subjective Quality of Life (QOL)
- 4) Sense of Group Cohesion

4.1.2. Hypothesis

The working hypothesis predicted positive clinical significance and/or significant differences (reliable change) on participants' mental health functioning, body awareness, sense of group cohesion, and subjective QOL.

4.1.3. Quantitative Data and Analyses

For Phase 1, a small-N design was employed in which participants had different baselines in their attendance to the DMT open group. Figure 4.1 provides a visual sample of this multiple baseline for four DMT participants. Assessed were the therapeutic effects of DMT among cancer survivors and informal cancer caregivers by measuring outcome changes related to their: 1) subjective quality of life, 2) mental health functioning, 3) body awareness, 4) sense of group cohesion, and 5) subjective DMT experience.

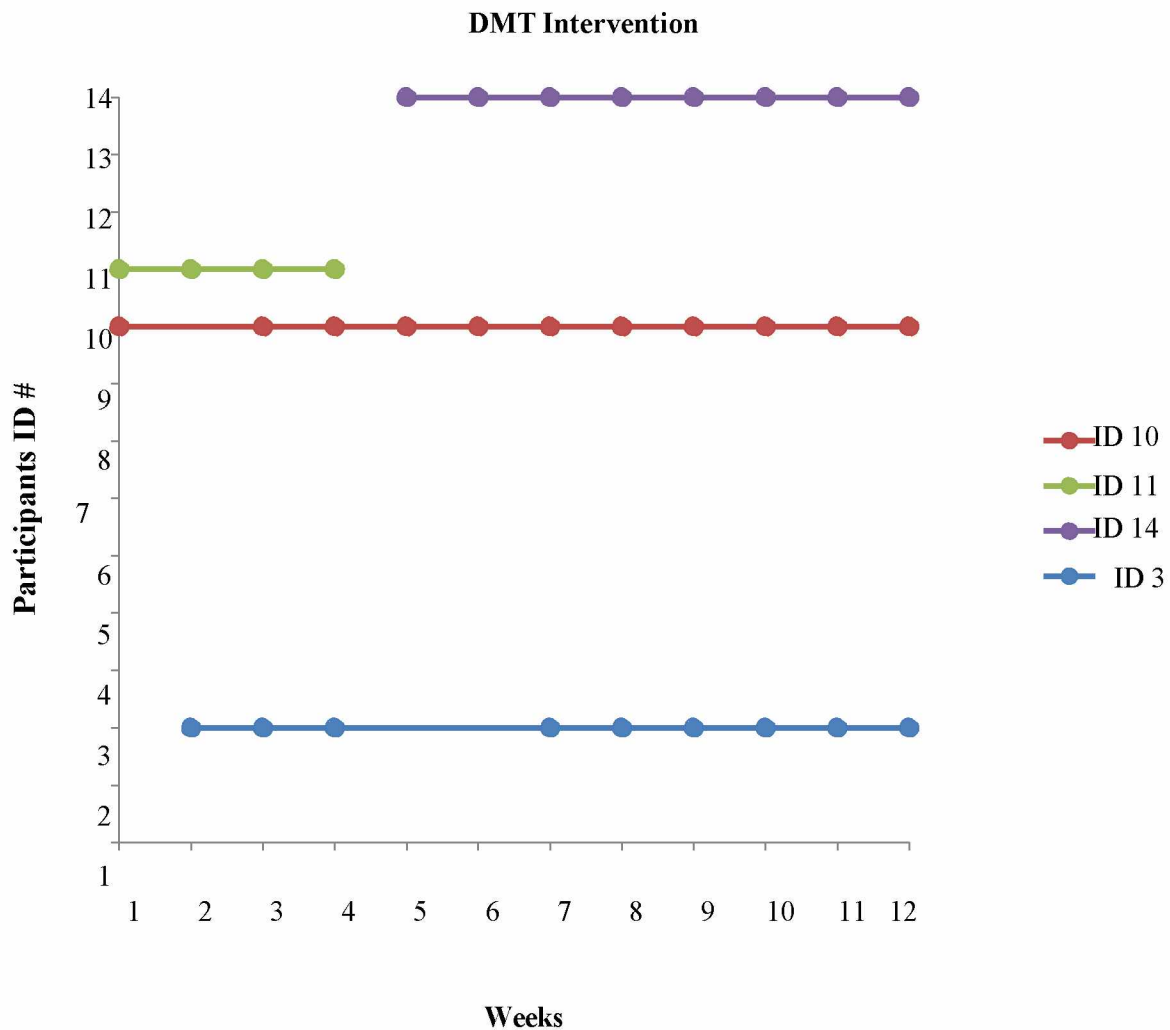


Figure 4.1 Illustration of DMT Intervention for 4 Participants at Multiple Baselines

A small-N research design was considered to be the more appropriate methodology. A randomized control trial (RCT) has inherent limitations in its applicability when examining the effects of an intervention in practice-based settings with individual patients (Graham, Karmarker, & Ottenbacher, 2012). RCT is a research approach that demonstrates causal relationships and efficacy of a certain treatment (Graham et al., 2012). It has a strong internal validity but often requires a large number of participants to achieve statistical significance (Clay, 2010). Although RCTs have been frequently used for biomedical types of research, some researchers argue that the method may not be well-suited for studies on psychological interventions because such interventions tend to interact with numerous factors, such as gender, age, education level, and quality of life (Clay, 2010). One major challenge of conducting an RCT would be controlling for these numerous, potentially confounding, variables. Another major criticism of RCT is that individuals who participate in trial studies often do not represent the whole population, thus limiting generalization to individuals in real-world settings (Clay, 2010).

The small-N research design afforded a more pragmatic and flexible approach by facilitating a closer examination of the effects and utility of DMT as an intervention within the context of professional practice in real-life (Morgan & Morgan, 2001). Specifically, for this methodology, the individual becomes the unit of analysis, and behavior outcomes are continuously assessed through repeated observations (Morgan & Morgan, 2001). Inherent to this approach is the assumption that the process of change experienced by an individual will unfold over time (Hilliard, 1993). Hence, continuous measurement of specific outcomes affords a higher degree of confidence that measured behavioral changes are representative of the participant over time (Morgan & Morgan, 2001). For this study, demographic and outcome data (primarily closed-ended, objective data) were coded, entered into a database, and analyzed using the computer statistical software program PASW (Version 22).

Analyses involving repeated measures of time series design were conducted to determine 1) incremental and overall outcome changes over time (within subjects' effects) in participants' mental health functioning, body awareness, sense of group cohesion, and overall subjective QOL; and 2) different effects

between participants (between-subjects effects) of the DMT intervention (per standardized measures collected throughout the intervention). Statistical analyses included the use of descriptive statistics, Pearson correlations, paired sample t-tests, and repeated measures ANOVA.

4.1.4. Qualitative Data and Analysis

Sources of qualitative data included the following: 1) short open-ended DMT questionnaire, 2) researchers' (primary investigator and two undergraduate student research assistants) group session notes and observations, and 3) audio recordings of DMT sessions. These were analyzed for themes that evolved from each DMT session. Responses from the open-ended short questionnaire together with session notes and audio recordings were reviewed and transcribed for content analysis. Analysis employed techniques (open coding and constant comparison within and across participants and groups) of directed content analysis (Hsieh & Shannon, 2005). Directed content analysis is a way of organizing, classifying, and interpreting qualitative data. In this type of content analysis, expressions of ideas are grouped together and assigned initial codes or themes based from a theory or research findings (Hsieh & Shannon, 2005).

4.2. Participants

Nineteen cancer survivors and informal cancer caregivers in the Fairbanks North Star Borough (FNSB) area were recruited to participate in the study. From this group, a total of 16 individuals (13 cancer survivors and 3 informal cancer caregivers) with baseline and final OQ-45 results were included in the analyses. For other measures (FACT-G, MAIA, CQOLI) only 12 individuals (9 cancer survivors and 3 informal caregivers) had baseline and final scores to be included in the data analyses. Four of the participants were not included in the analyses due to the following reasons: 1) two travelled out of state for follow-up treatment; and 2) two had incomplete measures.

Participants were predominantly female (14/16 or 88%) and older adults with an age range of 45-83, with 63% (10) in their 60s or older, and nine (56%) retired. In terms of ethnicity, the majority (11) of the participants self-identified as being White (75%), while the remaining five (5) individuals identified as

Alaska Native (3), African-American (1), and being biracial (White/Mexican Indian) (1). The majority of the participants had received some college education and/or a college degree (14 or 88%). About a third (6) were married while the unmarried participants reported being never married (1), widowed (5), separated (1) or divorced (2). See Table 4.1 for the demographic characteristics of the sample.

Table 4.1

Demographic Profile of Participants Who Completed a Minimum of Two DMT Sessions

Demographic Characteristics	Cancer Survivor	Cancer Caregiver
Ethnicity		
White	8	3
African-America	1	
Alaska Native	3	
White-Mexican Indian	1	
Gender		
Female	12	2
Male	1	1
Age		
40-49	2	1
50-59	2	1
60-69	8	
80 and above	1	1
Marital Status		
Married	5	1
Divorced	3	
Separated	1	
Widowed	4	1
Single	1	
Education		
High school/GED	2	
Some College/Technical School	5	1
Some College/Graduate	6	2
Current Employment		
Employed	2	2
Out of work (1 year or more)	1	
Retired	8	1
Unable to work	1	
Part-time	1	

N=16

Among the 13 cancer survivors, seven were receiving cancer treatment during the data-gathering phase of this research. For the three informal cancer caregivers, two had a parent who was diagnosed with cancer while one had a spouse who was treated for cancer and died. Eight cancer survivors reported that

they were diagnosed primarily with breast cancer. Additionally, a cancer survivor and two caregivers also reported having a combination of breast cancer and other type(s) of cancer for a diagnosis herself and the caregivers' loved ones. From this pool, three had other forms of cancer that included kidney, colon, lung, and stomach. Lung cancer was the second most common cancer diagnosis among the participants (19%).

Table 4.2 provides the different cancer diagnosis of participants.

The majority of participants (15 or 94%) reported various health concerns that ranged from cancer, diabetes, lymphedema, high blood pressure, fatigue, arthritis, depression, anxiety, sinusitis, and body pain. Specifically, 13 (81%) reported experiencing some type of chronic body pain, 10 (63%) indicated having high blood pressure, seven (44%) were diagnosed with a heart ailment, and seven were receiving chemotherapy and/or radiation and cancer medications to treat their cancer of the breast (5), neck and sinus (1), and appendix (Table 4.3).

Table 4.2

<i>Cancer Types</i>		
Cancer	Cancer Survivors	Caregiver's Family Member
Appendix	1	
Breast	8	
Lung	3	1*
Breast, Lung, Stomach & Colon		1
Neck & Sinus	1	
Breast & Colon		1
Breast & Kidney	1	

**Caregiver's family member (parent) was also a DMT participant*

Table 4.3

Participants' Health Concerns

Health Concerns	Cancer Survivors	Cancer Caregiver
Arthritis and/Body Pain	10	3
Diabetes	2	2
Digestion	1	
Cancer Treatment	7	
Dizziness	1	
Detached vitreous	1	
Fatigue	1	
Heart Problem	4	3
High Blood Pressure	8	2
Lymphedema	1	
Mood Disorders (Anxiety, Depression)	3	
Sinusitis	1	
Thyroid Problem	1	

4.3. Procedure**4.3.1. Human Subjects Protection**

The research protocol for this dissertation was reviewed and given expedited approval by the University of Alaska, Fairbanks (UAF) Institutional Review Board (IRB) to ensure that the research process adhered to the ethical standards in conducting research (see Appendix A).

4.3.2. Recruitment and Selection

Inclusion criteria for participation in the research program were the following: 1) being 18 years or older, 2) self-identifying as a cancer survivor (received a cancer diagnosis at any time in his/her life) and/or an Informal Caregiver, 3) being physically able and willing to participate in the DMT sessions as well as self-monitor their own physical limits.

Conditional inclusion criteria: Clearance from health providers and a doctor's note giving them permission to participate in the program was required from interested participants who were currently undergoing treatment (chemotherapy and/or radiation therapy), had a surgical incision that was not completely healed, had a lymphatic drain, had undergone major surgery within the last three months, or had undergone reconstructive plastic surgery within the past six months. Additionally, all participants agreed to have their DMT sessions documented (audio and written forms).

Exclusion criteria: Individuals were excluded from participating if they were pregnant and/or had a severe physical condition that prevented them from performing their normal usual daily activities, and those uncomfortable communicating in English.

Recruitment: Purposive sampling techniques were used for participant recruitment. Purposive sampling techniques involved selecting “certain units or cases based on a specific purpose rather than randomly” (Teddlie & Yu, 2007, p. 80). To achieve the desired sample, multiple purposive sampling techniques were used, namely: criterion sampling and snowball sampling. Criterion sampling involves selecting participants according to the inclusion and exclusion criteria set for the study. Snowball sampling pertains to participant recruitment, involving recruitment by general word of mouth or referrals by existing research participants and community partners (Teddlie & Yu, 2007). Eligible participants were recruited from the community and local community-based organizations by disseminating and posting approved flyers at Fairbanks Native Association (FNA), Fairbanks Memorial Hospital (FMH), and the Tanana Chiefs Conference (TCC) (see Appendix B).

Additionally, the FMH Cancer Navigators and staff of the Oncology and Radiation department provided potential participants (patients) with a copy of the study flyer during their clinical care visits. Interested individuals also had the opportunity to distribute flyers within their social network to people they thought might have an interest in participating. Flyers were also posted and distributed through FMH, FNA, and TCC offices as well as on social media outlets (e.g., Facebook, websites, list serves) for those organizations. Finally, information from the flyers was disseminated to the community via a newspaper ad published in the Sunday edition of the Fairbanks Daily News Miner on August 17, 2014 (Appendix C).

4.3.3. Community Based Participatory Research (CBPR)

This dissertation study was supported and endorsed by FMH through their medical providers (nurses and oncologist), Education Department and Cancer Navigation Program. Informal and formal consultation meetings (in-person, phone, e-mail) were regularly conducted with the cultural advisors from FNA and academic expert consultants (dissertation committee members and an external licensed

DMT/Clinical Psychologist). Specifically, their involvement included advising on the following: (1) recruitment process and materials such as the type and content of advertising materials to be used and the wording of the informed consent forms; (2) choice of venue and time of DMT interventions; (3) clinical supervision on DMT; (4) interpretation and presentation of preliminary research findings during Phases 2 Follow-up and Findings Forum; and (5) dissemination of research findings.

To achieve the study goals and aims, the study comprised two phases of intervention and data collection activities (see Figure 4.2). Phase 1 involved conducting and evaluating the DMT intervention, while Phase 2 involved conducting a Follow-up and Interactive Findings Forum in which the preliminary results of study were presented to participants and stakeholders.

4.3.4 Phase 1 DMT Intervention

During Phase 1 (DMT Intervention), the research initially followed a randomized control trial (RCT) design with a wait list control group that would crossover to active treatment (See Figure 4.2). In this design, the treatment group (Group 1) was to receive eight once-a-week DMT sessions during weeks 1 to 8, and the wait list control group (Group 2) would cross over to receive eight once-a-week DMT sessions during weeks 9 to 16.

A total of eight participants (5 cancer survivors and 3 caregivers) participated in the Treatment Group and received DMT intervention for four weeks while 6 participants (all cancer survivors) were assigned to the Wait List Control Group. Both groups were administered the outcome measures during weeks 1-4 (Table 4.4). To ensure participants' confidentiality, all participants were assigned identification numbers as a means to link their data at multiple time points. All of the outcome measures (see Section 4.4, Measures) were administered during week 1 for participants in the Treatment and Control Group. For weeks 2-3, both groups were asked to complete the following outcome measures: Outcomes Questionnaire-45 (OQ-45), Group Cohesiveness Scale (GCS), and Open-Ended DMT Questionnaire.

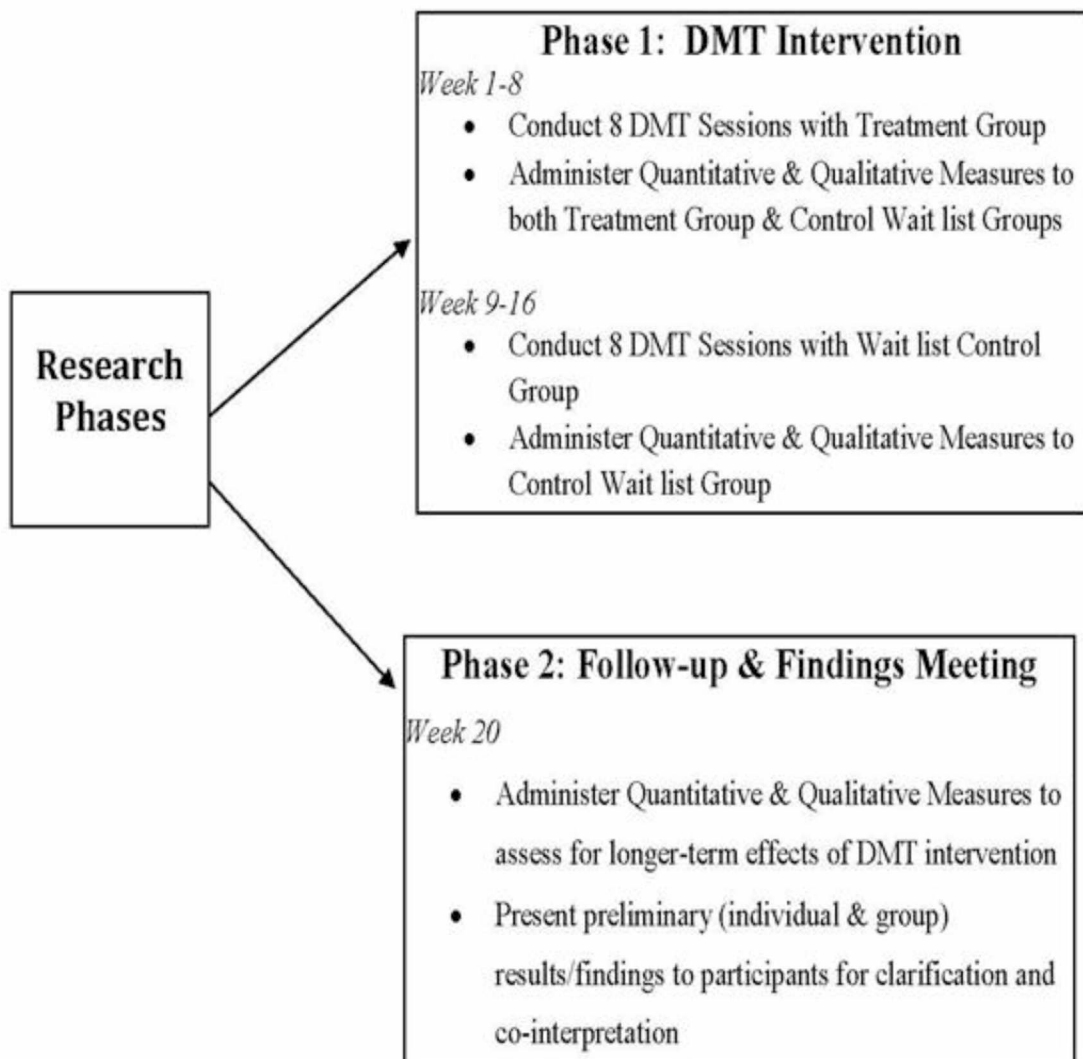


Figure 4.2 Research Phases using the Original RCT with Wait List Crossover Study Design

Table 4.4

Phase 1 Schedule of Data-Collection Activities

Treatment Group (Week 1-3)			Wait List Control Group (Week 1-3)		
<u>1</u>	<u>2</u>	<u>3</u>	<u>1</u>	<u>2</u>	<u>3</u>
Informed Consent	OQ-45	OQ-45	Informed Consent	OQ-45	OQ-45
Demographic Questionnaire	Short Open-Ended Questionnaire	Short-Open Ended Questionnaire	Demographic Questionnaire	Short Open-Ended Questionnaire	Short Open-Ended Questionnaire
All Measures	GCS	GCS	All Measures	GCS	GCS
* All Measures: Outcomes Questionnaire-45, Functional Assessment Cancer Treatment-General (FACT-G), Multidimensional Assessment of Interoceptive Awareness (MAIA), Caregivers Quality of Life Index (CQOLI), Group Cohesiveness Scale (GCS)					

During weeks 1-3, the researcher encountered several challenges that deemed the original RCT design unfeasible. Some of the extraneous factors that proved difficult to control to maintain the integrity of the RCT design included the following: 1) participants in the Control Group were expecting therapy-like sessions during meetings with the researcher to complete the outcome measures; 2) lowered weekly measure completion rates; 3) requests by research partner FMH to accommodate patient referrals; 4) request of participants of the control group to receive the DMT intervention sooner; and 5) challenges encountered by the Treatment Group in consistently attending the weekly sessions.

Because there were participants who were actively receiving cancer treatment, some of those randomly assigned to the control group needed to travel out of town for treatment and hence were not able to participate during the cross over to the DMT Treatment Group. Similarly, some participants in the Treatment Group also had to miss sessions because they either felt too ill from the side effects of radiation and/or chemotherapy or they needed to travel out of town for treatment and/or follow-up care.

Consequently, it proved difficult for participants both in the Treatment Group and Control Group to consistently attend the eight weekly DMT intervention sessions in its closed group format. In keeping with the values of community-based, participatory, and practice-based research, the researcher in consultation with her dissertation committee, decided to revise the study design from an RCT wait list

crossover design to a single open DMT group format with a small-N design that included repeated measures of specific outcomes. Changing the study design allowed participants from the control and treatment group to attend the DMT sessions as they were physically able and/or their schedules permitted. The open-group format and small-N design with multiple baselines proved to be both feasible and patient-focused. It allowed for a serial observation and assessment of the effects of the DMT intervention among typical individual cancer survivors and informal cancer caregivers who were in a treatment setting where the researcher could not control all extraneous factors (Graham et al., 2012).

Once the study designed was revised to an open-group format, a total of nine additional weekly sessions were offered. This enabled the Control Group participants to receive the eight weekly DMT sessions that they originally consented to. Meanwhile, the Treatment Group participants continued attending the sessions with the potential to receive a maximum of 12 DMT sessions. In addition, to address the hospital's (FMH) patient referrals, the open DMT group format allowed individuals to enter the study throughout the 12 weeks.

Continual participant enrollment resulted in an individualized schedule of outcome measures administration. Specifically, the measures for mental health functioning, group cohesion, and participants' subjective DMT experiences were administered at each DMT session. The outcome measures on body awareness and QOL were completed by participants only at their baseline (1st session), mid-point (4th and 8th sessions), and last session (see Table 4.5). For participants who dropped out early in the study, their results were included in the analyses if they were able to complete a minimum of two sets of all outcome measures.

Table 4.5

Participant's Individual Schedule of Data Collection Activities in the DMT Program

Number of DMT Sessions Attended by Participants	Corresponding Outcome Measures Administered
Session 1	*All Measures
Sessions 2 & 3	OQ-45, GCS, Open-Ended DMT Questionnaire
Session 4	*All Measures
Sessions 5-7	OQ-45, GCS, Open-Ended DMT Questionnaire
Session 8	*All Measures
Sessions 9-11	OQ-45, GCS, Open-Ended DMT Questionnaire
Session 12	*All Measures
*All Measures: Outcomes Questionnaire-45, Functional Assessment Cancer Treatment General (FACT-G), Multidimensional Assessment of Interoceptive Awareness (MAIA), Caregivers Quality of Life Index (CQOLI), Group Cohesiveness Scale (GCS)	

Nineteen individuals (13 cancer survivors and 6 informal cancer caregivers) participated in the open DMT group. From this group, 16 had a minimum attendance of two sessions and their results for the outcome measures on mental health functioning, group cohesion, and subjective DMT experience were included in the pre- and post-analyses. For the body awareness and overall QOL outcome measures, 12 were able to attend a minimum of four sessions, thus completing at least two sets of outcome measures, and had their results included in the data analyses. Figure 4.3 provides a flow chart to illustrate the study's research process.

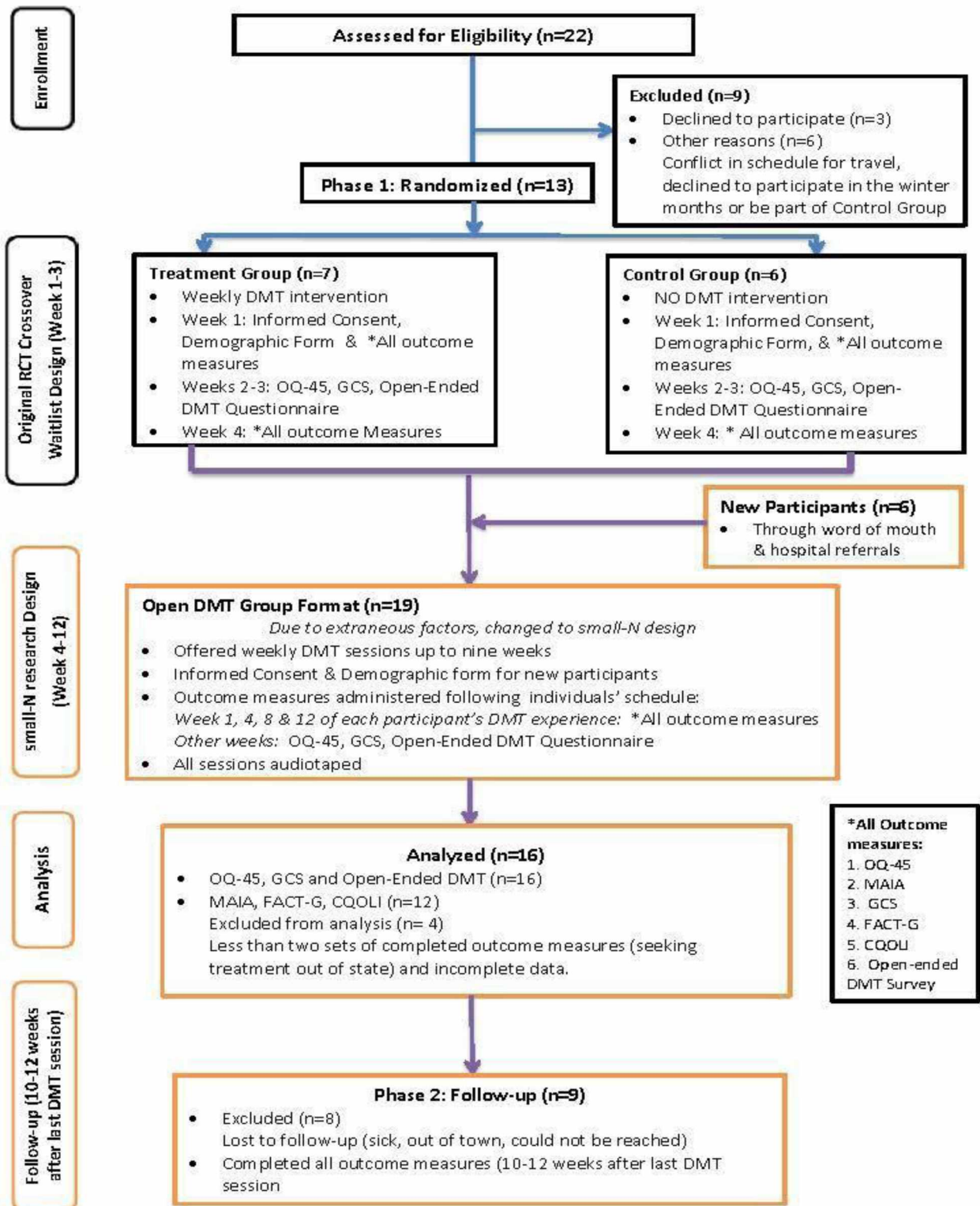


Figure 4.3 Research Process Consort Statement (based on Schulz, Altman, & Moher, 2010).

4.3.4.1 DMT Protocol

Each DMT session lasted an average of 90-120 minutes (1.5 - 2 hours) and applied the principles of DMT. Each DMT session included six components: 1) Warm-up (using the Lebed Healthy Steps) and Body Awareness; 2) Circle Dance and Improvisations; 3) Cool-Down Period; 4) Verbal Group Sharing; 5) Closing Movement Ritual; and 6) Completing Measures (See Table 4.6). During each session participants were free to take breaks.

The Lebed Method™: Healthy Steps, is an evidence-based dance and exercise program designed be therapeutic and medically safe for cancer survivors (Sandel et al., 2005). Lebed is currently used in hospitals, cancer centers, and hospices throughout the U.S. and UK to promote physical functioning and improve QOL for cancer survivors and individuals suffering from chronic illnesses. For this dissertation study, the researcher completed the Healthy Steps Lebed Instructor's certification (Appendix D).

During the *warm-up activity*, participants formed a circle and performed gentle movement exercises aimed at promoting better breathing and addressing the physical side effects often encountered by cancer survivors. The researcher with two trained undergraduate research assistants led the group through a series of 10 Lebed exercises. Exercises followed a specific order with the goal of opening up the various lymphatic systems in the body, increasing blood flow in specific body parts to help reduce lymphedema, and facilitating increased range of motion. For the breathing exercises, participants were provided with tiny bottles that contained soap bubbles and were instructed to blow bubbles while listening to music. Participants had the option of undertaking movements while seated or standing-up.

After completing the structured Lebed exercises, participants engaged in *body awareness movement* activities and were encouraged to move different body parts (such as their fingers, hands, elbow, nose, eyes, shoulders, hips) in isolation. This activity became part of the rapport-building process. As participants engaged in playful movement activities, they became more comfortable with their bodies and in moving with the group. They were encouraged to explore the room and greet one another using their

various body parts. Playing with balloons was also an enjoyable activity that was incorporated in some of the sessions.

For the *Circle Dance and Movement Improvisation* (Component 2) of the DMT session, participants gathered in a circle and engaged in dance movements initiated by the researcher. As they became comfortable, they took turns initiating their own movement expressions and were supported by others as their movements were imitated by the entire group. This “mirroring activity” occurred either in group format or dyads, in which participants took turns initiating and copying movements performed by themselves and other group members. Similar to verbal psychotherapy, the movement themes and activities depended on what participants initiated during each session. For example, movement imageries that incorporated subsistence activities drawn from both traditional and local cultural practices common among Alaskans and Alaska Native people (such as hunting, fishing, cutting salmon, and berry-picking) were incorporated in the circle dance when introduced.

The *Cool-down* (Component 4) period included similar exercises from the warm-up component except that these movements were less intense and involved fewer repetitions. This component prepared participants to transition to a resting state and to the verbal group sharing component.

Verbal Group Sharing (Component 4) was added to this study so that participants could provide feedback (both qualitative and quantitative), have the opportunity to share and clarify emotions brought about by their movement experience, and relate insights from their DMT experience to events in their daily lives (Payne, 1988). During this component, participants were instructed to take a moment of silence to reflect on their “here and now” experience as they decided what they wanted to share. After everyone had shared, the researcher summarized the themes that emerged. Some themes noted: self-care, developing a sense of community, helping others, body awareness, worries about health issues, dealing with life stressors, and relationship concerns. Every DMT session started and ended with a group movement experience. Based from the group sharing, participants provided suggestions on what specific theme the group would explore for their last movement activity and/or closing movement ritual.

For the *Closing Movement Ritual* (Component 5), participants engaged in movement improvisations as they expressed the theme(s) -- such as building hope, gratefulness, social connection, caring, etc. -- that they identified from the verbal group sharing.

The last component of the DMT session involved the *Completion of Outcome Measures* (Component 6). Participants completed the various outcome measure needed for quantitative and qualitative analyses. Participants filled out the outcome measures while enjoying the light refreshments (crackers and dip, fruits and vegetable platter, cupcakes, water) that were regularly offered at all DMT sessions. To ensure participants' privacy, all outcome measures were labeled with ID numbers that were assigned to each participant. On a few occasions, participants requested help in reading the questions in the outcome measures because they had forgotten to bring reading glasses. The two undergraduate student researchers were responsible for the administration and collection of all the completed measures for each DMT session. Although the primary investigator was occasionally present in the room while participants filled out the outcome measures, she did not access the completed measures until after the entire DMT intervention phase had ended. Outcome measures typically required half an hour to complete. At each session, participants also had the opportunity to win door prizes, including a \$25 gift card to a local grocery store and two other smaller prizes (such as bath and body products, T-shirts, candles).

4.3.4.2. DMT Materials

DMT sessions required the following equipment and materials: computer laptop, portable speakers, a wide array of music, and DMT props, such as soap bubbles (for the breathing exercises), balloons (for the warm-up and body awareness component), and Hawaiian leis (for Polynesian themes and movement imageries involving flowing waters and gentle breezes).

4.3.4.3. Location and Schedule of Activities

Sessions were held Thursday evenings after hospital hours (September 4, 2014-November 20, 2014) at FMH. During the first three weeks of the study, the Treatment Group participated in DMT sessions in the reception area of the hospital's Radiation and Oncology Department located at the J. Michael Carroll Cancer Center. When the research design was revised on week 4 to an open DMT group format, the sessions were held in the available conference rooms and/or classrooms of main building of FMH to accommodate a larger sample of participants.

4.3.5. Phase 2: Follow-up and Findings Meeting

Phase 2 of the study involved: 1) administrating the set of evaluation measures to assess longer-term effects of the DMT intervention and 2) presenting back to participants their individual preliminary results and findings for co-interpretation and clarification. Five participants attended the follow-up meeting held on February 5, 2015. Five other participants expressed interest in attending the meeting but were unable due to illness and or prior commitments. Over the following two weeks, the researcher attempted to contact participants who were not able to attend so they could discuss their results and complete their follow-up outcome measures. Three participants could not be reached because they were out of town or too ill to fill out the forms. Overall, a total of nine ($n = 9$) participants attended the follow-up session.

Other follow-up activities included the presenting of preliminary research findings to the FMH Cancer Navigators on December 5, 2014. By using the small-N design, the researcher was able to gather and provide practical information to health providers regarding improvement of care for patients they referred and/or receiving services from FMH. Only group findings were presented to protect the confidentiality of the study participants. In this meeting, the requests by participants for similar sessions to be continually offered through the hospital paved the way for FMH to extend its support to a similar study proposed by one of the researcher's undergraduate research assistants ("Therapeutic Dance and Movement for Cancer Survivorship").

Table 4.6

DMT Protocol

Components	Goals	*Activities
1 Warm-Up (Lebed) and Body Awareness	<ul style="list-style-type: none"> ➤ Increase mobility ➤ Promote emotional and body awareness (i.e. noticing muscular tensions, psychological states and mood) ➤ Develop rapport among participants ➤ Promote group cohesion by moving together in synchrony with music 	<ul style="list-style-type: none"> ➤ Breathing exercises through blowing bubbles ➤ Slow movement exercises incorporating Lebed Method (e.g. head turns, head rolls, arm and shoulder rotation, finger crawls, mild stretching & flexing hands and feet, small leg lifts, lightly tapping feet) ➤ Greeting each other through movement
2 Circle Dance and Movement Improvisation	<ul style="list-style-type: none"> ➤ Explore movement improvisation & creative expression. ➤ Facilitate emotional expression through movement 	<ul style="list-style-type: none"> ➤ Low-impact movement activities as a form of emotional expression ➤ Movement activities based on themes to prompts (“What are we doing?”) ➤ Mirroring activity
3 Cool-Down	<ul style="list-style-type: none"> ➤ Relieve residual tension & temporary fatigue built up during movement activities (Payne, 1988). ➤ End movement experience to transition to a resting state 	<ul style="list-style-type: none"> ➤ Similar warm-up exercises but with less intensity & duration (e.g. breathing exercises, mild stretching) ➤ Encourage participants to verbally share their insights and experience to the group while doing the cool-down together
4 Closing Movement Ritual	<ul style="list-style-type: none"> ➤ Express theme(s) from group sharing through movement ➤ Bookmark the end of the shared DMT experience and provide a sense of closure of the group process 	<ul style="list-style-type: none"> ➤ Circle dance: participants take turns expressing themes through movement ➤ Creative group dance/movement Improvisation
5 Completing Measures	<ul style="list-style-type: none"> ➤ Share & clarify feelings & experience from activity ➤ Gather assessment data ➤ Discuss logistics & future plans 	<ul style="list-style-type: none"> ➤ Discussion/sharing of experience. ➤ Fill out quantitative & qualitative measures

* Activities can take place while standing, seated

* Props include soap bubbles (breathing exercises), balloons, leis (for Hawaiian music)

Additionally, a formal presentation of research findings and recommendations was shown to the FMH Cancer Committee Board (comprising of FMH oncologists, specialists, cancer navigators, hospital staff, and representatives of American Cancer Registry etc.) on April 1, 2015. The purpose of the formal presentation was to provide concerned stakeholders with practical information to help inform and improve the care of their individual patients and build the foundation for evidence-based clinical practice in actual treatment settings (Graham et al., 2012).

4.4. Measures

Six methods of data gathering were employed for this research study. During the Phase 1: DMT Intervention, data collection included use of: 1) Demographic and Medical History Form (Appendix E); 2) Audio documentation of all the DMT sessions; 3) Therapist Group Notes; 4) Standardized Psychological Measures; and 5) Short open-ended DMT questionnaire. For Phase 2: Follow-up and Findings Forum, participants were asked to complete the standardized psychological measures and 6) provide their feedback and co-interpret the study's preliminary results. The five standardized measures that administered to the participants included the following: 1) Functional Assessment Cancer Treatment General (FACT-G), Version 4 (for cancer survivors only); 2) Caregivers Quality of Life Index (CQOLC) (for caregivers only); 3) Outcome Questionnaire (OQ-45); 4) the Multidimensional Assessment of Interoceptive Awareness (MAIA); and 5) the Group Cohesiveness Scale (GCS). These tools measure constructs relevant to DMT and cancer survivorship.

4.4.1. Functional Assessment Cancer Treatment General (FACT-G, V.4)

The FACT-G (Version 4) is a 27-item, 5-point Likert-scale self-report of general quality of life (QOL) measure that can be used for cancer survivors and other people suffering from a variety of chronic illness conditions, including cancer (Cella et al., 1993). It has four dimensions: 1) Physical, 2) Social/Family, 3) Emotional, and 4) Functional. It takes between five and eight minutes to complete and has a test-retest reliability of 0.92 (Cella, 2007). The FACT-G (V.4) was completed by cancer survivor participants (Appendix F).

4.4.2. Caregivers Quality of Life Index (CQOLI)

The CQOLI is a 35-item, 5-point Likert Scale self-report tool developed to assess physical, social, emotional, and financial aspects of wellbeing for caregivers (Weitzner, Jacobsen, Wagner, Friedland, & Cox, 1999). Cancer creates major disruptions not only to the life of the patient but also their informal caregivers. McMillan (1996) found that the QOL of primary caregivers of hospice patients with cancer was negatively affected by their caregiving tasks. This tool was created in recognition of the need to involve care of informal caregivers in the treatment of cancer patients (Weitzner et al., 1999). The measure's reliability and validity was tested with 263 caregivers of patients diagnosed with lung, breast or prostate cancer and its test-retest reliability was at 0.95 while its internal consistency was at 0.91. It takes about 10 minutes to complete (Weitzner et al., 1999) and was completed by the three caregivers. (See Appendix G)

4.4.3. Outcomes Measure (OQ-45)

The OQ-45 is a 45-item, self-report, 5-point Likert outcome questionnaire for adults. It is designed for repeated measurement of an individual, to track and assess their functional level and change over the course of their therapy and after termination (Lambert, et al., 1996). It has three domains: 1) Symptoms of distress, 2) Interpersonal Functioning, and 3) Social Role.

The Symptom of Distress scale has a cut-off score of 36 and measures symptoms of depression, anxiety, affective disorders, and stress-related illnesses. The Interpersonal Relationship includes items pertaining to an individual's experience of loneliness, conflict with others, and family difficulties and has a cut-off score of 15. The Social Role has a cut-off score of 12 and pertains to conflicts at work, relationships, and interactions with parents, adults, and peers.

Individuals who score high in any of the three sub-scales indicate they are reporting being bothered by concerns related to each domain, while low scores mean that they are reporting absence or denial of symptoms. A change score of 14 points or more has been determined to be a reliable change. To be clinically significant, a change score needs to be a reliable change and the post-treatment score needs to be

less than 64 (Lambert, 2012). It takes about 10-12 minutes to complete the scale, which has an internal consistency of 0.90 and a test-retest reliability of 0.84 over a period of three weeks. (See Appendix H)

4.4.4. Multidimensional Assessment of Interoceptive Awareness (MAIA)

The MAIA is a 32- item, 6-point Likert scale developed to measure adaptive and maladaptive body awareness as well as changes over time as individuals learn and practice therapies that claim to enhance body awareness (Mehling et al., 2012). It takes about 10-12 minutes to complete and has eight separately scored scales, measuring eight concepts related to body awareness and perceptions of mind-body interactions. These eight scales are: 1) Noticing, 2) Not Distracting, 3) Not Worrying, 4) Attention, 4) Regulation, 5) Emotional Awareness, 6) Self-regulation, 7) Body Listening, and 8) Trusting. The table below provides a brief description of the different body awareness that each MAIA scale measures:

Table 4.7

Brief Descriptions of the Eight MAIA Scales

Scale	Description
Noticing	Awareness of uncomfortable, neutral or comfortable body sensations
Not Distracting	Tendency not to use distraction to cope with uncomfortable body Experiences
Not Worrying	Tendency not to experience emotional distress when experiencing physical Discomfort
Attention Regulation	Ability to sustain and control attention to body sensations
Emotional Awareness	Ability to attribute specific physical sensations to physiologic manifestations of emotions
Self-Regulation	Ability to regulate distress by attention to body sensations
Body Listening	Tendency to actively listen to the body for insight
Trusting	Experience of one's body as safe and trustworthy

Source: Mehling et al., 2012, p. 15

The tool's multidimensionality is considered one of its major strengths, as it is able to differentiate psychological aspects related to body sensations and perceptions. In terms of its psychometric properties, the eight scales' internal-consistency reliabilities range from 0.66 to 0.82 (Mehling et al, 2012). (See Appendix I)

4.4.5. The Group Cohesiveness Scale (GCS)

The GCS (see Appendix J) is a seven item, 5-point Likert scale developed to measure members' sense of group cohesion and engagement in a group psychotherapy process (Wongpakaran, Wongpakaran, Intachote-Sakamoto, & Boripuntakul, 2012). This scale, based on findings on the behavioral function of cohesion, is two measures combined: 1) the Therapeutic Factor Inventory of Cohesiveness and 2) the Group Climate Questionnaire-Short Form (Wongpakaran, Wongpakaran, Intachote-Sakamoto, & Boripuntakul, 2011). This scale showed a high level of internal consistency, convergent, and divergent validity when used along with a UCLA Loneliness Scale and Cohesion to Therapist Scale questionnaire for 135 inpatients of a university hospital (Wongpakaran et al., 2011).

Overall, this instrument has an internal consistency of 0.87, with an item-total correlation coefficient that ranged from 0.497 to 0.752. It takes less than five minutes to complete and was chosen primarily for its simplicity, brevity, and easy-to-understand items (Wongpakaran et al., 2012). Although it is a short measure and primarily developed for an inpatient unit, its inclusion of vital elements in a group process that have predictive validity makes it applicable for multiple uses in outpatient settings (Wongpakaran et al., 2012).

4.4.6. Cancer Survivor/Caregiver Demographics and Health History

This questionnaire was developed specifically for this study to gather demographic information and describe the research sample in terms of age, gender, education, and employment. It also asks for cancer and other health information, such as stage, type, age at diagnosis, types of other illnesses (if any), and length of time as a cancer survivor and/or caregiver. This tool was also used to help measure potential explanatory variables/covariates (i.e., confounding variables) involved in cancer survivor and caregiver

overall QOL, body awareness, and other therapeutic outcomes from the DMT intervention program. It takes about 5 minutes to complete.

4.4.7. Open-Ended DMT Questionnaire

This short qualitative questionnaire was developed specifically for this study. It has four questions about participants' assessment of their feelings before and after the DMT session, their views about how the DMT session influenced those feelings, their suggestions and/or requests concerning the sessions, and other issues and/or topics (possibly something they were unable to share in the session) (Appendix K).

Chapter 5: Results

A total of 16 participants (13 cancer survivors and 3 informal cancer caregivers) participated in at least two of the 12 weekly open group form DMT sessions held at the Fairbanks Memorial Hospital (FMH). The therapeutic benefits of DMT among participants were examined on the following dependent variables: 1) Mental health functioning (as measured by the OQ-45); Body awareness (as measured by the MAIA); Group cohesion (measured by the GCS); and 4) overall QOL (as measured by the FACT-G for cancer survivors and CQOLI for the informal cancer caregivers). Participants ($n = 16$) on average attended six sessions with a range of 2-11. One participant had only attended a minimum of two sessions and one had a maximum attendance of 11 sessions. See Figure 5.1 for the illustration of the frequency of participants' attendance in the DMT sessions.

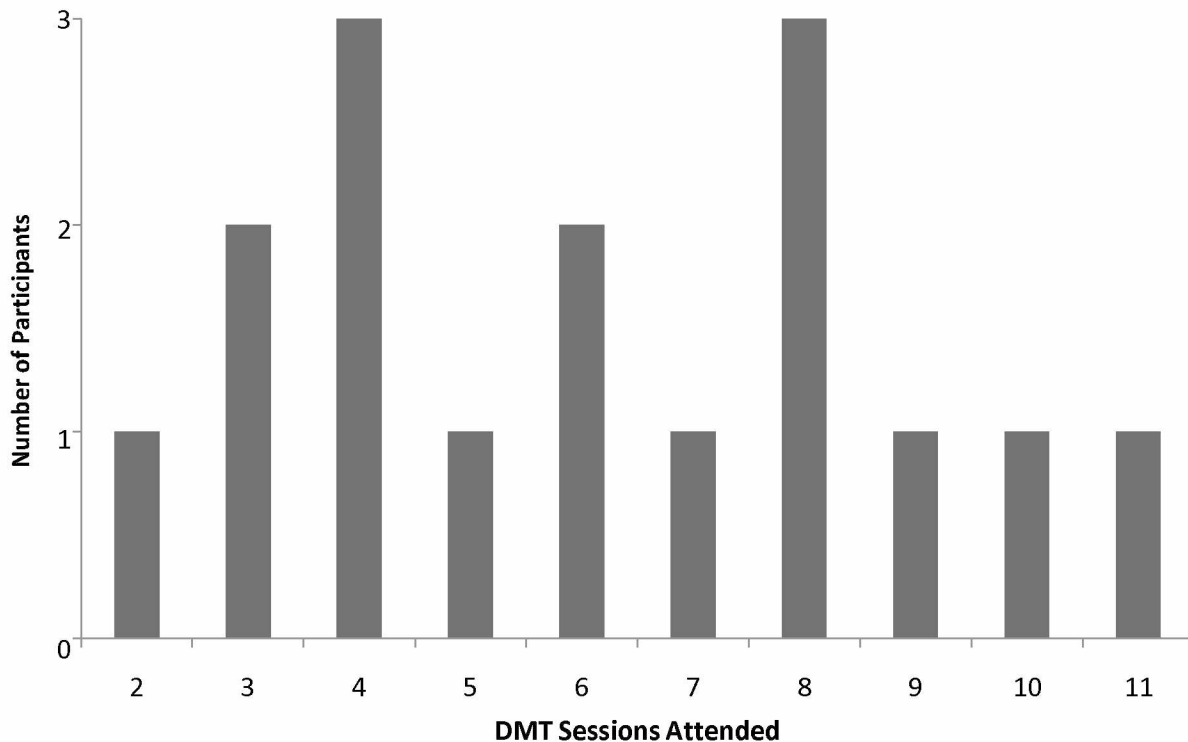


Figure 5.1. Frequency of participants' DMT attendance.

5.1. Quantitative Statistics

5.1.1 Outcomes Questionnaire-45 (OQ-45)

The OQ-45 is a measure of mental health functioning. A higher score suggests the client is reporting a large number of symptoms of distress (mainly anxiety, depression, somatic problems, and stress) as well as difficulties in interpersonal relationships, in social role responsibilities (such as work or school), and in their general quality of life. The higher the score, the more mental health concerns (“disturbed”) the client is. A decrease of 14 points or more from participants’ baseline OQ-45 scores indicates reliable change (Lambert, 2012). Out of 16 participants, 12 had final OQ-45 global scores that were lower than their baseline OQ-45 global scores. Six participants (38%) showed reliable change in their OQ-45 total scores with a change score range of 14-36 points. Ten (62%) participants had no reliable change in their OQ-45 total scores. None of the participants reliably deteriorated in their overall mental health functioning (Table 5.1). For clinical significance, a reliable change of 14 points or more and a post-test OQ-45 total score of 64 or less are warranted (Lambert, 2012). None (0) of the participants showed a clinically significant change in their OQ-45 total scores after their participation in the DMT sessions.

Table 5.1

<i>Summary of OQ-45 Outcomes</i>		
Outcomes	N	%
Clinically significant change	0	0
Reliable Change	6	38
No Reliable Change	10	62
Deterioration	0	0
N = 16		

The OQ-45 has 3 scales: 1) *Symptom of Distress* measures symptoms of depression, anxiety, affective disorders, and stress-related illnesses; 2) *Interpersonal Relationships* pertains to an individual’s experience of loneliness, conflict with others as well as family difficulties; and 3) *Social Role Functioning* pertains to conflicts at work, relationships and interactions with parents, adults, and peers.

The cut-off scores for each of the three OQ-45 scales are as follows: 1) Symptom of Distress - 36 or more; 2) Interpersonal Relationship - 15 or more; and 3) Social Role - 12 or more (Lambert, 2012).

The OQ-45 results of 16 participants who attended a minimum of two sessions (Baseline and Final sessions) are presented in Table 5.2. The table displays participants' mean scores for their OQ-45 total scores and domain scores at baseline and final session. Participants' overall QOL are above the cut-off (63 or more) indicating clinical significance. This means that they were reporting a large number of symptoms of distress (somatic and mood problems), high levels of difficulties in their interpersonal relationships, social role (work or school), and in their general quality of life.

Table 5.2

Descriptive Statistics of Participants OQ-45 Scores (Total and Domain Scales)

Time points	<i>n</i>	Total Score <i>M (SD)</i>	Symptom of Distress <i>M (SD)</i>	Interpersonal Relationships <i>M (SD)</i>	Social Role <i>M (SD)</i>
Baseline	16	95.75 (23.64)	50.50 (12.33)	21.63 (7.81)	18.00 (4.37)
Final	16	86.31 (20.24)	44.44 (10.29)	19.63 (7.27)	17.13 (4.22)

A paired-samples t-test was conducted to evaluate the difference between the participants' ($n = 16$) OQ-45 total scores in their first and last DMT sessions. The results indicated that the mean for participants' final OQ-45 total scores ($M = 86.31$, $SD = 20.24$) was significantly lower than their baseline OQ-45 total scores ($M = 95.75$, $SD = 23.64$), $t(15) = 3.33$, $p < 0.01$. The standardized effect size index d , was 0.70, which represents a *medium* effect size (Sullivan & Feinn, 2012). The 95% confidence interval for the mean difference between the two ratings was 2.28 to 16.59. Participants overall reported significantly better mental health functioning (lower OQ-45 total scores) at their last DMT session relative to their first DMT session (Figure 5.2).

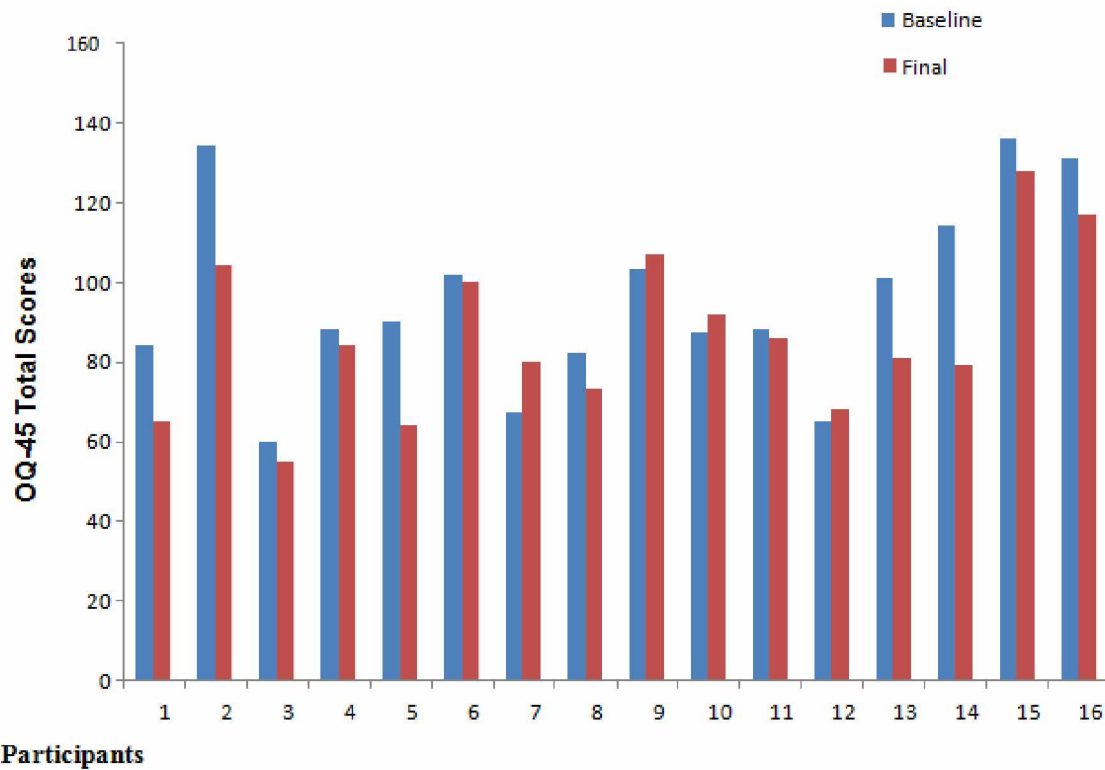


Figure 5.2. Bar graph of participants' total OQ-45 scores at baseline vs. final session

Out of the six participants who had exhibited reliable change in their total OQ-45 scores, three were actively being treated for cancer (chemotherapy, radiation, and/or cancer medications) while the remaining three were cancer survivors in remission. It should be noted that while the decreases in their scores indicate reliable change and lesser reporting of distressing symptoms and interpersonal and social role difficulties, their overall OQ-45 scores nevertheless tended to remain high compared to the normal population, indicating that they continue to experience mental health concerns even in the face of improvement.

Table 5.3 shows participants' baseline and final overall OQ-45 scores, their change scores, number of sessions they attended, relationship to cancer, and a brief description of participants' self-reported health status and life issues during their participation in the program.

Table 5.3

Summary of OQ-45 Total Scores, Change Scores and Participants' Cancer Status

ID	Baseline	Final	Change Scores	Sessions Attended	Cancer and/or Health Status
1	84	65	*19	6	Survivor - active treatment
2	134	106	*28	3	Survivor- remission
3	60	55	5	8	Survivor- remission
4	88	85	3	4	Survivor – remission
5	90	64	*26	3	Survivor- remission
6	102	99	3	8	Caregiver
7	67	80	(-13)	9	Survivor - active treatment (hospitalized once during DMT program)
8	82	73	9	11	Survivor – remission
9	103	108	(-5)	4	Survivor -active treatment (dropped out to seek treatment out of state)
10	87	90	-(3)	4	Caregiver - partner died of cancer
11	88	85	3	10	Caregiver - mother is a survivor who also participated in the DMT sessions
12	65	68	-(3)	8	Survivor - active treatment
13	101	82	*19	7	Survivor - active treatment
14	114	78	*36	5	Survivor - active treatment
15	136	127	9	2	Survivor - active treatment
16	131	116	*15	6	Survivor – remission

*Reliable Change of 14 points or more

Active Treatment – undergoing cancer treatment (chemotherapy, radiation, & pills)

Paired-samples t-tests were performed to assess significant differences between the first and last DMT session in participants' ($n=16$) specific OQ-45 domain scores (Symptoms of Distress, Interpersonal Relationship, and Social Role). The t-test results are provided in Table 5.4.

Symptoms of Distress: The mean for participants' final OQ-45 Symptoms of Distress scores ($M = 44.44$, $SD = 10.29$), was significantly lower than their final OQ-45 SD scores ($M = 50.50$, $SD = 12.33$), $t(15) = 3.33$, $p < 0.01$. The standardized effect size index d , was 0.83, which is a *large* effect size (Sullivan & Feinn, 2012). The 95% confidence interval for the mean difference between the two ratings was 2.18 to 9.95. This means that participants overall reported significantly improved mood and less symptoms of distress (less anxiety and depression symptoms) at their last DMT session.

Interpersonal Relationships: The mean for participants' final OQ-45 Interpersonal Relationship scores ($M = 19.63$, $SD = 7.27$) was marginally significantly less than their baseline OQ-45 Interpersonal Relationship scores ($M = 21.63$, $SD = 7.81$), $t(15) = 2.11$, $p = 0.052$. The standardized effect size index d , was 0.53, which represents a *medium* effect size (Sullivan & Feinn, 2012). The 95% confidence interval for the mean difference between the two ratings was -0.02 to 4.02. This means that participants' overall reported somewhat better interpersonal relationships, fewer experiences of loneliness, conflict with others, and/or family difficulties at their final DMT session.

Social Role: There was no significant change between the mean for participants' baseline OQ-45 SR scores ($M = 18.00$, $SD = 4.37$) and their final OQ-45 SR scores ($M = 17.13$, $SD = 4.22$), $t(15) = 0.79$, $p = 0.44$. The standardized effect size index d , was 0.20, which is a *small* effect size (Sullivan & Feinn, 2012). The 95% confidence interval for the mean difference between the two ratings was to -1.49 to 3.24. This means that participants' experiences related to conflicts at work, relationships and interactions with parents, adults, and peers did not change significantly between their first and final DMT session.

Table 5.4

OQ-45 t-test Subscale Results: Symptom of Distress, Interpersonal Relationship & Social Role
Paired Differences

Outcomes Baseline vs. Final DMT session	Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference		t	df	Sig. (2- tailed)
Symptom of Distress	6.06	7.29	1.82	2.18	9.95	3.33	15	.005*
Interpersonal Relationship	2.00	3.80	.95	-.02	4.02	2.11	15	.052
Social Role	88	4.44	1.11	-1.49	3.24	.79	15	.44

* $p < 0.05$

The correlation coefficient between participants' change in Total OQ-45 (difference between Baseline OQ-45 and Final OQ-45) scores and the number of sessions they attended was computed. There was a moderate negative relationship between participants' change scores and number of sessions they attended but this relationship was not significant, $r = -0.36$, $p = 0.171$, $n = 16$. Figure 5.3 shows the scatter plot of participants' OQ-45 change scores by the total DMT sessions they attended.

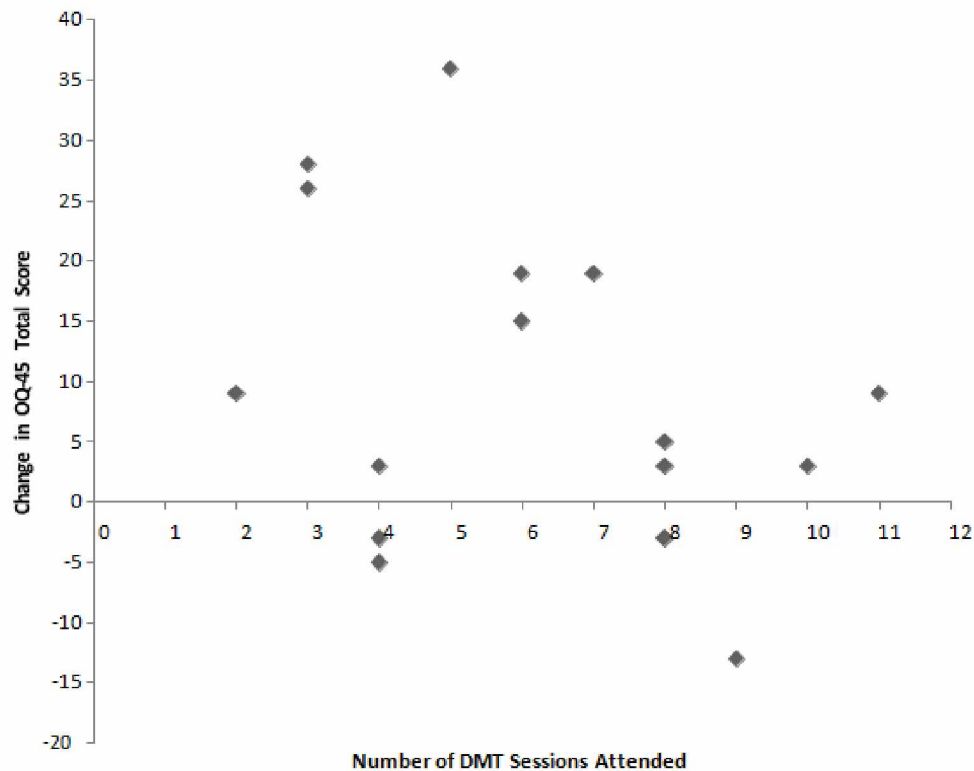


Figure 5.3. Scatter plot of change in participants' OQ-45 total scores by DMT attendance

5.1.2. Follow-up Evaluation

A total of nine ($n = 9$) participants completed the OQ-45 measure 12 weeks from the last conducted DMT session. Descriptive statistics of participants OQ-45 Total and Domain are shown in Table 5.5.

Table 5.5

Descriptive Statistics of OQ-45 Total & Subscale Scores across 3 time points

<u>Time points</u>	<u>n</u>	Total Score <i>M (SD)</i>	Distress <i>M (SD)</i>	Interpersonal Relationships <i>M (SD)</i>	Social Role <i>M (SD)</i>
Baseline	16	93.67 (28.04)	49.11 (15.16)	21.11 (8.42)	17.78 (4.97)
Final Session	16	82.22 (19.46)	44.44 (10.29)	19.63 (7.27)	17.13 (4.22)
Follow-up	9	81.22 (20.95)	41.00 (10.78)	19.56 (7.06)	16.00 (4.12)

Of those who attended the follow-up session, six (67%) participants had positive reliable change, two (22%) had no reliable change in their OQ-45 scores from baseline to follow-up, and one (11%) had overall mental health functioning deterioration at follow-up (see Table 5.6). None of the participants who provided followed-up data showed a clinically significant change in their OQ-45 scores.

Table 5.6

Summary of OQ-45 Total Scores, Change Scores and Participants' Cancer Status

ID	Baseline	Follow-Up	Change Scores	Sessions Attended	Cancer and/or Health Status
1	84	69	*15	6	Survivor - active treatment
2	134	92	*42	3	Survivor – remission
3	60	45	*15	8	Survivor – remission
7	67	87	*(-20)	9	Survivor - active treatment (hospitalized twice before follow-up session)
10	87	90	-(3)	4	Caregiver - partner died of cancer
12	65	59	6	8	Survivor - active treatment
13	101	87	*14	7	Survivor - active treatment
14	114	85	*29	5	Survivor - active treatment
16	131	117	*14	6	Survivor – remission

*Reliable Change of 14 points or more

Active Treatment – undergoing cancer treatment (chemotherapy, radiation, & pills)

5.1.2.1. Analysis of Intervention and Follow-up Results

OQ-45 Total Scores: A one-way within-subject ANOVA ($n = 9$) was conducted to examine the effects of time on participants' overall mental health functioning (OQ-45 total scores) at their baseline, final session and follow-up. The within-subjects factor is time with three levels (baseline, final session and follow-up) and the dependent variable is their total OQ-45 scores at these three time points.

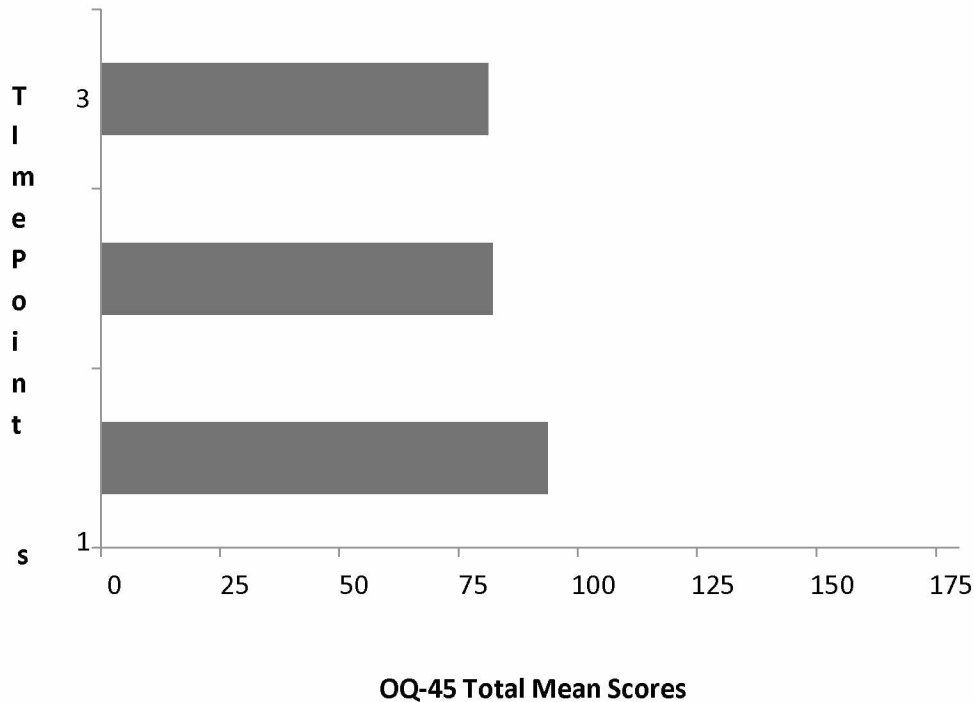


Figure 5.4. Bar graph of participants' ($n = 9$) OQ-45 Mean Total scores at 3 time points.

There was a significant time effect on participants' mental health functioning (Sphericity Assumed), $F(2,16) = 4.07$, $p = 0.03$, $\eta^2_p = 0.34$ (see Table 5.7). Figure 5.4 shows the bar graph of the estimated marginal means of participants' total OQ-45 scores at baseline, final, and follow-up sessions.

Follow-up polynomial and higher-order contrasts indicated a non-significant linear or quadratic effect. Post-hoc comparisons analysis likewise did not yield significant results. The non-significant results were likely due to the study's low power, with only nine participants. Table 5.7 provides the results of the Test of Within-Subjects Effects and Contrasts (linear and quadratic trends). Table 5.8 shows the pairwise comparisons without Bonferroni adjustments, which likewise indicated non-significance.

Table 5.7

Test of Within-Subjects Effects and Contrasts for OQ-45 Total Scores

Source		Type III Sum of Squares	Df	Mean of Squares	F	Sig.	Partial Eta ²	Non- cent Parameter	Obs. Power
OQ Time	S.A.	860.52	2	430.26	4.08	.037*	.34	8.15	.64
	Linear	860.53	1	696.89	4.46	.068	.36	4.46	.46
	Quadratic	163.63	1	163.63	2.98	.12	.27	2.98	.33

* $p < 0.05$; *Sphericity Assumed (S.A.)*; *Obs. (Observed)*

Table 5.8

Pairwise Comparisons of OQ-45 Total Scores (Baseline, Final Session and Follow-up)

OQ Time	OQ Time	Mean Difference	Std. Error	Sig.	95% Confidence Interval for Difference	
					Lower Bound	Upper Bound
1	2	11.44	5.35	.065	-.89	23.78
	3	12.44	5.89	.068	-1.14	26.03
2	1	-11.44	5.35	.065	-23.78	.89
	3	1.000	2.66	.717	-5.13	7.13
3	1	-12.44	5.89	.068	-26.03	1.14
	2	-1.000	2.66	.716	-7.13	5.13

* $p < 0.05$

OQ-45 Domains: A one-way within-subject ANOVA ($n = 9$) was conducted to examine the effects of time on the specific subscales of the OQ-45, namely: 1) Symptoms of Distress (SD), 2) Interpersonal Relationships (IR) and 3) Social Role (SR). Below are the results in narrative and table form (Table 5.9).

Symptoms of Distress. Results of a one-way within-subject ANOVA ($n = 9$) showed there was a significant effect of time on the number of distressing symptoms that participants were reporting, Sphericity Assumed $F(2,16) = 6.50$, $p = 0.01$, $\eta^2_p = 0.45$ (Table 5.9) Follow-up polynomial contrasts indicated a significant linear effect with means decreasing over time, $F(1,9) = 8.07$,

$p = 0.02$. This means that participants over time were reporting fewer symptoms of distress after participating in the DMT sessions. Higher-order polynomial contrasts were not significant (Table 5.10). Post-hoc comparisons analysis likewise did not yield significant results. The profile plot for estimated marginal means at baseline, final session and follow-up is illustrated in Figure 5.5.

Table 5.9

<i>Test of Within-Subjects Effects for OQ-45 Subscale Scores across 3 time points</i>									
Source		Type III Sum of Squares	df	Mean of Squares	F	Sig.	Partial Eta ²	Noncent Parameter	Observed Power
SD	S.A.	384.22	2	192.11	6.5	.01*	.45	12.99	.84
IR	S.A.	27.56	2	13.78	1.74	.21	.18	3.49	.31
SR	S.A.	16.07	2	8.04	1.03	.38	.11	2.06	.20

* $p < 0.05$, *Sphericity Assumed (S.A.)*

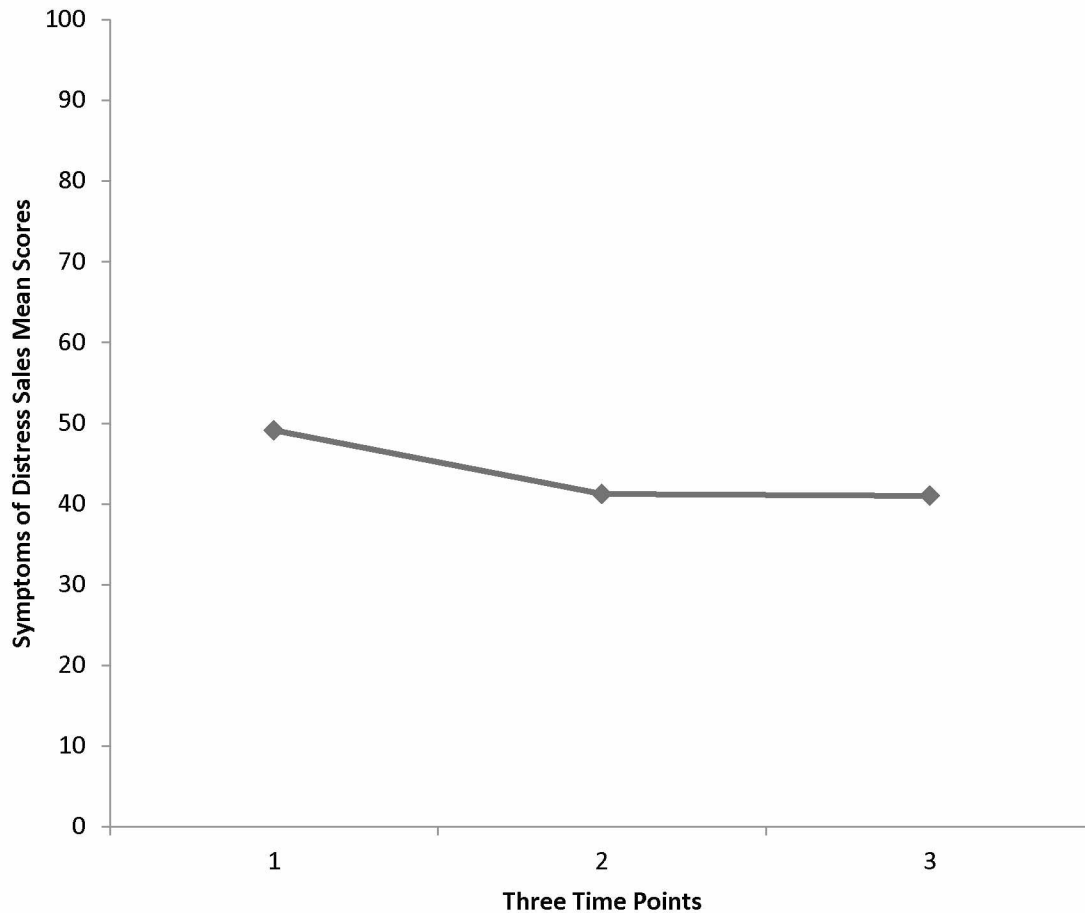


Figure 5.5. Profile plot of participants' OQ-45 Symptoms of Distress mean scale scores at 3 time points.

Interpersonal Relationship. The results of the one-way within-subjects ANOVA was not significant for the effects of time on participants' quality of relationships with their significant others (feelings of loneliness, conflicts with others and with family/partner), Sphericity Assumed $F(2, 16) = 1.74, p = 0.21, \eta^2_p = 0.18$ (see Table 5.9). Follow-up polynomial contrasts indicated non-significance for both linear and quadratic trends (Table 5.8). Results of post-hoc comparison analysis were also not significant. Figure 5.6 illustrates the profile plot for the estimated marginal means for this domain across the three time points.

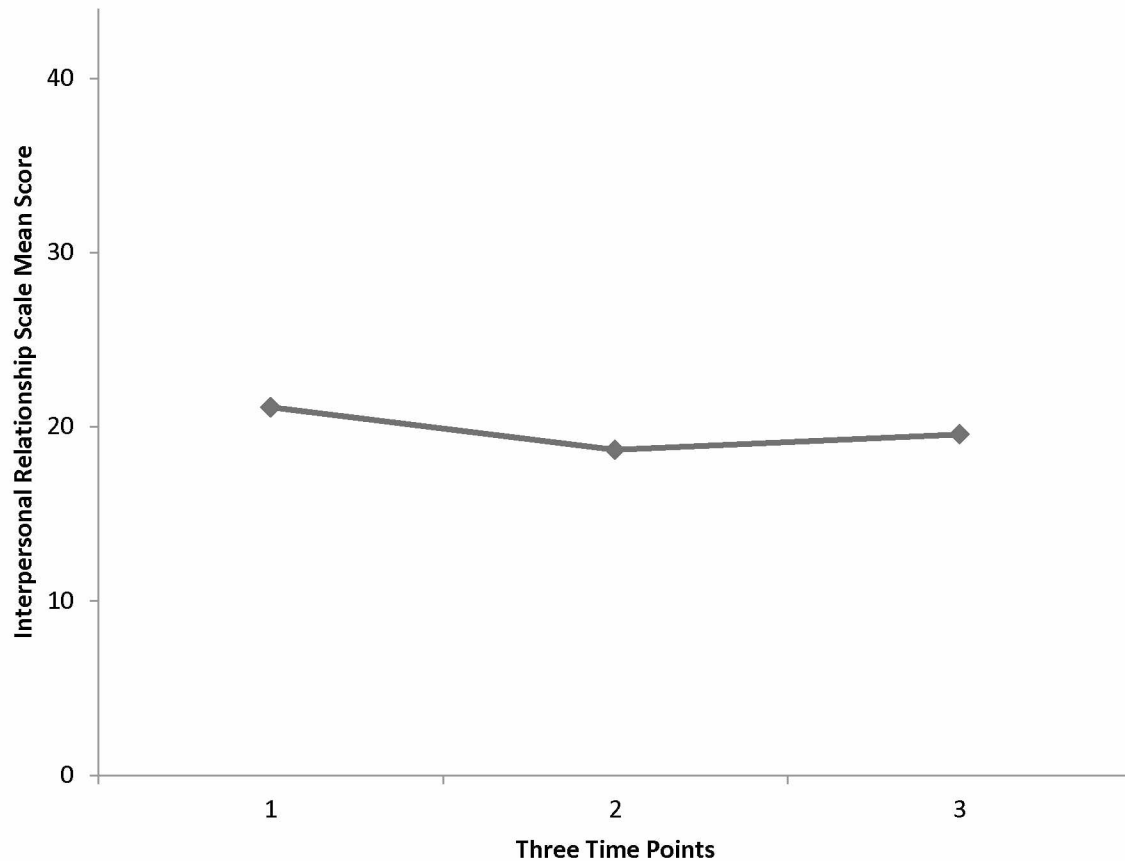


Figure 5.6. Profile plot of participants' OQ-45 Interpersonal Relationship mean scale scores at 3 time points.

Social Role. There were no significant results for the one-way within-subjects ANOVA conducted ($n = 9$) for the effects of time on participants' reported difficulties related to their functions at work, school or in the family, Sphericity Assumed $F(2,16) = 1.03, p = 0.38, \eta^2_p = 0.11$ (Table 5.9). Linear and quadratic trends were both not significant (Table 5.10). Post-hoc comparison analysis yielded not significant results. Figure 5.7 provides the estimated marginal means for the Social Role domain scores of participants across the three time points.

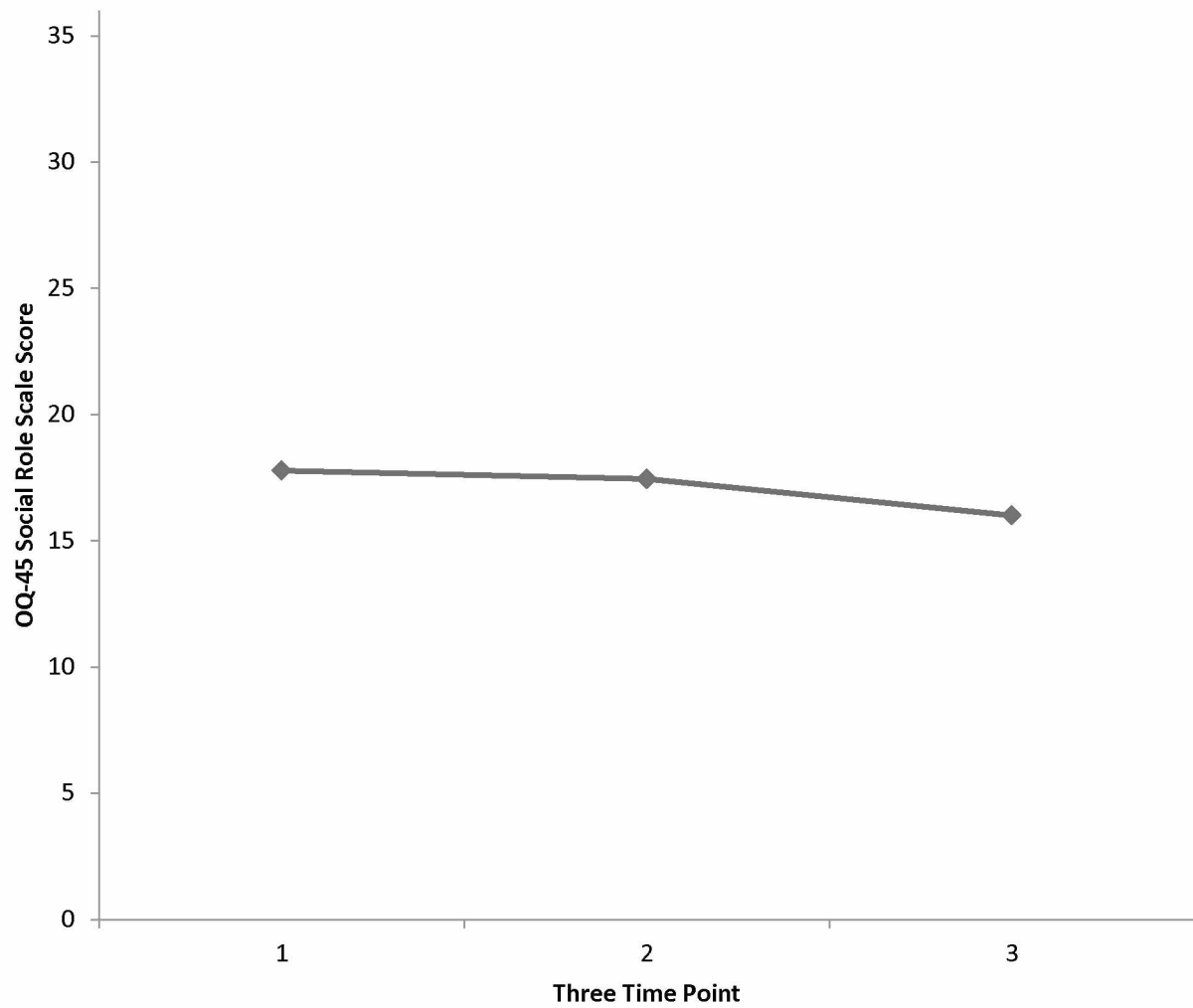


Figure 5.7. Profile Plot of Participants' OQ-45 Social Role Scale scores at 3 time points.

Table 5.10

Test of Within-Subjects Contrasts for OQ-45 Subscale Scores across 3 Time points

Source	Type III Sum of Squares	df	Mean of Squares	F	Sig.	Partial Eta ²	Noncent Parameter	Observed Power
SD								
Linear	296.06	1	296.06	8.07	.02*	.50	8.07	.70
Quadratic	88.17	1	88.17	3.93	.08	.33	3.93	.42
IR								
Linear	10.89	1	10.89	.93	.36	.10	.93	.14
Quadratic	16.67	1	16.67	4.12	.08	.34	4.12	.43
SR								
Linear	14.22	1	14.22	1.31	.29	.14	1.31	.17
Quadratic	1.85	1	1.85	.39	.55	.05	.39	.09

* $p < 0.05$

SD: Symptoms of Distress; IR: Interpersonal Relationships; SR: Social Role

5.1.3. Group Cohesiveness Scale (GCS)

The GCS is a seven item, 5-point Likert Scale developed to measure participants' sense of group cohesion and engagement in a group psychotherapy process.

5.1.3.1. GCS Results at Baseline to Final Session

A paired samples *t*-test was conducted to assess changes in participants' ($n = 16$) sense of group cohesion (GCS) between first and last DMT session. With significance testing set at $p < 0.05$, there was no significant change in participants' GCS score from baseline ($M = 29.06$, $SD = 6.43$) to their final session ($M = 32.06$, $SD = 3.09$), $t = 15$, $p = 0.07$, although there was a trend in the expected direction. The 95% confidence interval for the mean difference between the two ratings was -6.23 to 0.24. The standardized effect size index d , was 0.49, a *small* to *medium* effect size (Sullivan & Feinn, 2012).

Overall, the participants displayed a high level of group cohesion at baseline, achieving a group mean of 29.06. At the final session, the group mean for cohesion was at 32. The highest score in terms of a participant's GCS rating of his/her group engagement and cohesion was 35. Table 5.11 provides the descriptive statistics of participants' GCS scores across three data collection points.

Table 5.11

Descriptive Statistics of Participants' Group Cohesion Scores

Time points	<i>n</i>	Total Score <i>M (SD)</i>
Baseline Session	16	29.06 (6.43)
Final Session	16	32.06 (3.09)
Follow-up	9	31.78 (3.60)

The average score of each participant's GCS total was also computed at each session. For example, if participant X had a total GCS total score of 34 for session 1, this score was divided by 7 (number of questions in the measure) to attain his/her average GCS score for that session. Each of participants' overall mean GCS score across each session was computed to arrive at their group average of GCS mean scores (range: 1-5), which was then correlated to their OQ-45 change scores (Figure 5.8). Participants' sense of engagement and group cohesiveness and the change in their mental health functioning were weakly to moderately correlated at, $r(14) = 0.35$, $p = 0.18$. This may be attributed to the little variability in how participants rated their sense of group cohesion at baseline to final DMT session.

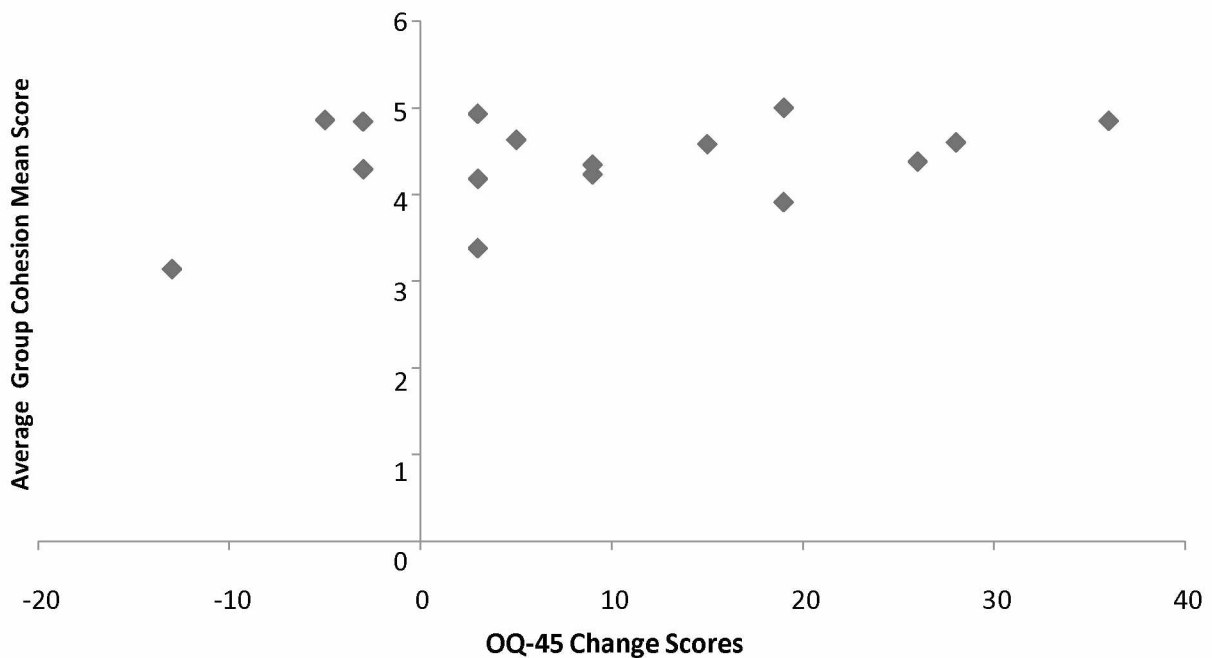


Figure 5.8. Scatterplot of participants' average Group Cohesion mean scores correlated with their OQ-45 change score

5.1.3.2. Follow-up Evaluation.

The GCS scores of participants' ($n = 9$) who completed the follow-up measures were subjected to a one-way within-subjects ANOVA to examine the effects of time on participants' feelings of group cohesiveness. Results yielded no significance on the effects of time on participants' sense of group cohesiveness and engagement, Sphericity Assumed $F(2, 16) = 1.75, p = 0.25, \eta^2_p = 0.15$. Follow-up polynomial contrasts indicated non-significance for both linear and quadratic trends (Table 5.12). Results of post-hoc comparison analysis were also not significant (Table 5.13). Figure 5.9 illustrates the profile plot for the estimated marginal means for GCS across the three time points.

Table 5.12

Test of Within-Subjects Effects & Contrasts for Group Cohesiveness (3 Time points)

Source	Type III Sum of Squares	df	Mean of Squares	F	Sig.	Partial Eta ²	Noncent Parameter	Observed Power
SA	20.96	2	10.48	1.45	.26	.15	2.90	.27
Linear	9.39	1	9.39	1.53	.25	.16	1.53	.19
Quadratic	11.57	1	11.57	1.39	.27	.14	1.39	.18

* $p < 0.05$; Sphericity Assumed (SA)

Table 5.13

Pairwise Comparisons of GCS Scores (Baseline, Final and Follow-up Sessions)

GCS Time (I)	GCS Time (J)	Mean Difference (I – J)	Std. Error	Sig.	95% Confidence Interval for Difference	
1	2	-2.11	1.47	.19	-5.54	1.32
	3	-1.44	1.17	.25	-4.14	1.25
2	1	2.11	1.49	.19	-1.32	5.54
	3	.67	1.12	.57	-1.91	3.25
3	1	1.44	1.17	.25	-1.25	4.15
	2	-.67	1.12	.57	-3.25	1.91

* $p < 0.05$

5.1.4. Functional Assessment Cancer Treatment General (FACT-G, V.4)

FACT-G is a self-report of general quality of life (QOL) measure used for cancer survivors and other people suffering from a variety of chronic illness conditions. It has four domain scales: 1) Physical Wellbeing (PWB), 2) Social Wellbeing (SWB), 3) Emotional Wellbeing (EWB), and 4) Functional Wellbeing (FWB). This measure was completed by participants who self-identified as cancer survivors. A higher score means patient is reporting better QOL.

A total of nine cancer survivors completed this measure at two time points and were included in the pre- and post- analyses during the DMT program. Seven cancer survivors were also included in the follow-up evaluation. Table 5.14 shows descriptive statistics of participants' FACT-G total and domain scores at baseline, final session, and follow-up.

Table 5.14

Descriptive Statistics of FACT-G Total & Domain Scores across 3 Time points

Time points	<i>n</i>	Total Score <i>M (SD)</i>	Physical Wellbeing <i>M (SD)</i>	Social Wellbeing <i>M (SD)</i>	Emotional Wellbeing <i>M (SD)</i>	Functional Wellbeing <i>M (SD)</i>
Baseline	9	75.11(15.24)	19.33 (3.91)	20.44 (4.03)	18.33 (4.24)	17.00 (6.08)
Final	9	82.33(14.62)	20.22 (4.38)	21.44 (3.61)	21.00 (3.54)	19.67 (5.38)
Follow-up	7	89.00 (15.35)	20.50 (3.74)	23.63 (5.63)	21.50 (2.93)	21.00 (5.58)

A paired-samples t-test was conducted to evaluate the difference in participants' ($n = 9$) FACT-G total scores between their first and last DMT sessions. There was no statistically significant difference between participants' baseline FACT-G global scores ($M = 75.11$, $SD = 15.24$) and their final FACT-G global scores ($M = 82.33$, $SD = 20.24$), $t(8) = -1.85$, $p = 0.10$. The 95% confidence interval for the mean difference between the two ratings was -16.22 to 1.77. The standardized effect size index d , was found to be at 0.61, which is a *medium* effect size (Sullivan & Feinn, 2012) (Table 5.15).

Additionally, paired-samples t-tests were performed for each of the four FACT-G domains (PWB, SWB, EWB, and FWB) to assess changes in these scores from the first to the last DMT sessions. Participants' baseline emotional wellbeing (EWB) scores ($M = 18.33$, $SD = 4.24$) were significantly lower

than their final EWB scores ($M = 21.00$, $SD = 3.54$), $t(8) = -2.92$, $p < 0.02$. The standardized effect size index d , was 0.97, which is a *large* effect size (Sullivan & Feinn, 2012). The 95% confidence interval for the mean difference between the two ratings was -4.77 to -0.56. This means that participants overall reported better emotional wellbeing after attending their last DMT session (Table 5.15). No significant changes across time were found for the other three subscales (physical, social and functional wellbeing).

Table 5.15

FACT-G t-test Results for Total and Domain Scores

Outcomes Baseline vs. Final DMT session	Paired Differences						Sig. (2- tailed)	
	Mean	Std. Deviation	Std. Error	95% Confidence Interval of the Difference		t		df
				Lower	Upper			
Total FACT-G Score	-7.22	11.70	3.90	-16.22	1.77	-1.85	8	.10
Physical Wellbeing (PWB)	-.89	4.51	1.50	-4.36	2.58	-.59	8	.57
Social Wellbeing (SWB)	-1.00	3.24	1.08	-3.49	1.49	-.93	8	.38
Emotional Wellbeing (EWB)	-2.67	2.74	.91	-.477	-.56	-2.92	8	.02*
Functional Wellbeing (FWB)	-2.67	4.03	1.34	-5.77	.43	-1.00	8	.08

* $p < 0.05$

5.1.4.1. Follow-up Evaluation

The FACT-G total scores of participants ($n = 7$) who completed the follow-up measure was subjected to a one-way within-subjects ANOVA to evaluate the effects of time on the participants' overall subjective assessment of their quality of life. The within-subjects factor is time with three levels (baseline, final session and follow-up) and the dependent variable is their total FACT-G scores at these three time points. There was a significant increase in participants' quality of life scores from baseline to follow-up, Sphericity Assumed, $F(2, 12) = 5.86$, $p = 0.02$, $\eta^2 = 0.49$.

Table 5.16

Test of Within-Subjects Effects for FACT-G Total, Domain Scores (3 Time Points)

Source		Type III Sum of Squares	df	Mean of Squares	F	Sig.	Partial Eta ²	Noncent Parameter	Observed Power
Total	SA	628.95	2	314.48	5.86	.02*	.49	11.71	.77
PWB	SA	11.14	2	5.57	1.14	.35	.16	2.27	.20
SWB	SA	79.24	2	39.62	6.78	.01*	.53	13.57	.83
EWB	SA	32.67	2	16.33	3.82	.05*	.39	7.64	.58
FWB	SA	96.10	2	48.05	5.97	.02*	.50	11.94	.78

* $p < 0.05$; Sphericity Assumed (SA)

Results of post-hoc comparison analyses were not significant (Table 5.17). Figure 5.10 illustrates the profile plot for the estimated marginal means for FACT-G total scores across the three time points.

Follow-up polynomial contrasts indicated a significant linear effect, with means increasing over time, $F(1,6) = 6.57, p = 0.04$. There was no significance found on multiple quadratic trends (Table 5.18).

Trend analysis indicates that participants reported a general improvement in their quality of life while participating in the DMT program and that they continued to feel better 12 weeks after their last DMT session.

Table 5.17

Pairwise Comparisons of FACT-G Total Scores over Time

FACT-G Time	FACT-G Time	Mean Difference	Std. Error	Sig.	95% Confidence Interval for Difference	
1	2	-9.71	4.24	.19	-23.66	4.23
	3	-12.86	5.02	.13	-29.35	3.63
2	1	9.71	4.24	.19	-4.23	23.66
	3	-3.14	1.70	.34	-8.72	2.43
3	1	12.86	5.02	.13	-3.63	29.35
	2	3.14	1.70	.34	-2.43	8.72

* $p < 0.05$

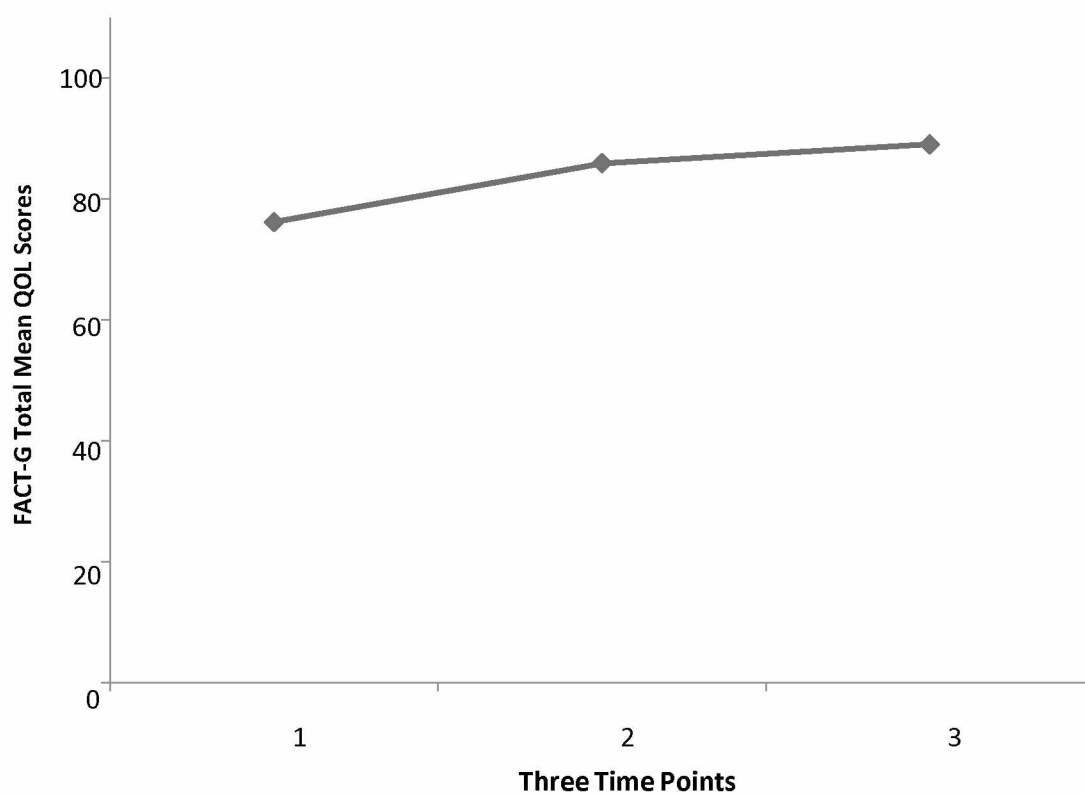


Figure 5.9. Profile plot of participants' FACT-G total mean QOL scores at 3 time points.

Table 5.18

Test of Within-Subjects Contrasts for FACT-G Total, Domain Scores (3 Time points)

Source	Type III Sum of Squares	df	Mean of Squares	F	Sig.	Partial Eta ²	Noncent Parameter	Observed Power
TOT								
Linear	578.57	1	578.57	6.57	.04*	.52	6.57	.57
Quadratic	50.38	1	50.38	2.61	.15	.30	2.61	.28
PWB								
Linear	5.79	1	5.79	1.21	.31	.17	1.21	.15
Quadratic	5.36	1	5.36	1.07	.34	.15	1.07	.14
SWB								
Linear	73.14	1	73.14	7.59	.03*	.56	7.59	.63
Quadratic	6.10	1	6.10	2.99	.14	.33	2.99	.31
EWB								
Linear	14.00	1	14.00	1.95	.21	.25	1.95	.22
Quadratic	18.67	1	18.67	13.44	.01*	.69	13.44	.86
FWB								
Linear	87.50	1	87.50	5.97	.05*	.50	5.97	.53
Quadratic	8.60	1	8.60	6.02	.05*	.50	6.02	.54

* $p < 0.05$

A one-way within-subject ANOVA ($n = 7$) was conducted to examine the effects of time on the four domains of the FACT-G: PWB, SWB, EWB, and FWB. Below are the results of the analyses per domain (See Table 5.16):

Physical Wellbeing (PWB). No significant effect of time was found on participants' physical wellbeing, Sphericity Assumed $F(2,12) = 5.86$, $p = 0.45$, $\eta^2_p = 0.49$. Follow-up polynomial contrasts as well as post-hoc t-test analysis (Table 4.19) did not yield any significant results. This means that over time, participants' assessment of their physical health did not significantly improve as they participated in the DMT sessions. Figure 5.11 illustrates the profile plot for the estimated marginal means for PWB scale scores across the three time points.

Table 5.19

Pairwise Comparisons of Physical Wellbeing Scale Scores over Time

(I) PWB Time	(J) PWB Time	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval for Difference	
					Lower Bound	Upper Bound
1	2	-1.14	1.49	.47	-4.78	2.450
	3	-1.29	1.17	.31	-4.15	1.58
2	1	1.14	1.49	.47	-2.50	4.78
	3	-.14	.86	.87	-2.24	1.95
3	1	1.27	1.17	.31	-1.58	4.15
	2	.14	.86	.87	-1.95	2.24

* $p < 0.05$

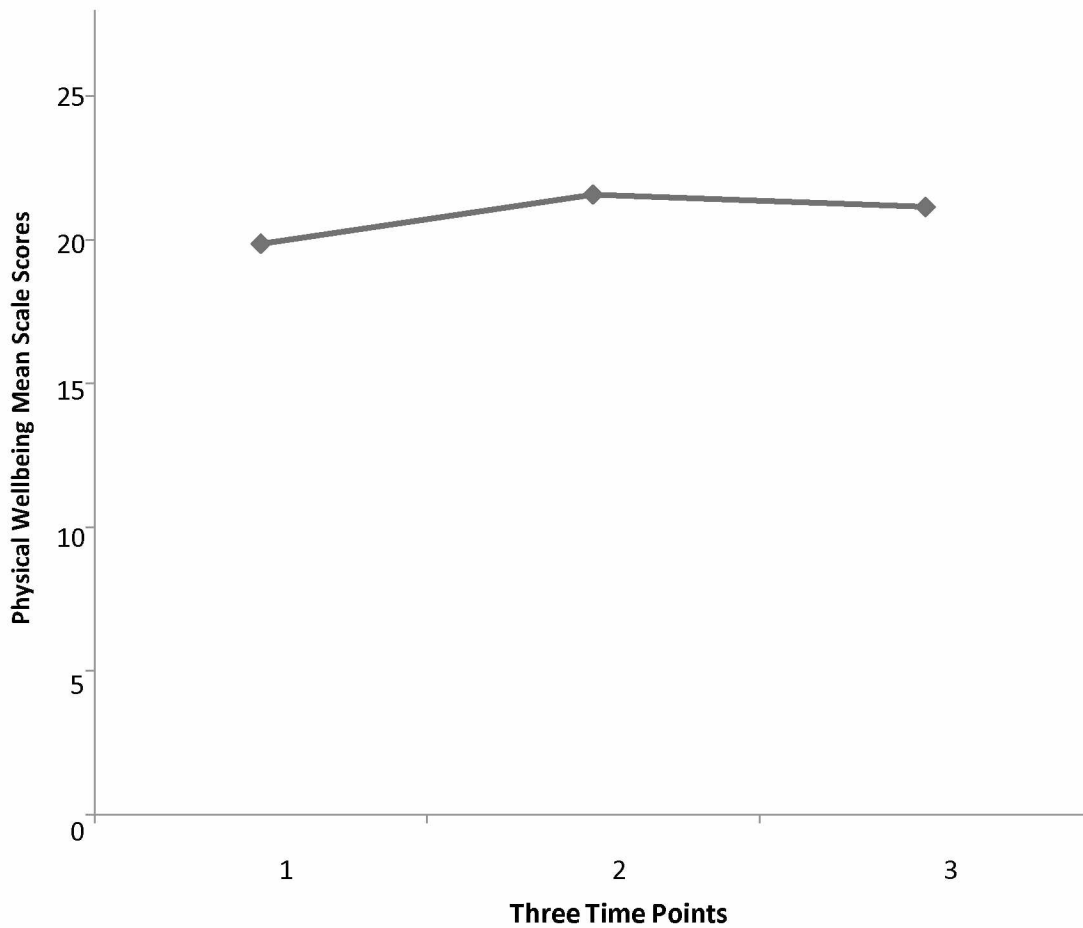


Figure 5.10. Profile plot of participants' Physical Wellbeing mean scale scores at 3 time points.

Social Wellbeing (SWB). A significant increase in participants' social wellbeing was found (Sphericity Assumed $F(2,12) = 3.82, p = 0.052, \eta^2_p = 0.39$). Follow-up polynomial contrasts indicated no significant linear effect. There was however significant quadratic effect with means displaying concavity showing an increase from baseline to a downward decrease over time. $F(1,6) = 13.44, p = 0.11$ (Table 5.16).

Emotional Wellbeing (SWB). A significant increase in participants' social wellbeing was found (Sphericity Assumed $F(2,12) = 6.78, p = 0.01, \eta^2_p = 0.53$). Follow-up polynomial contrasts indicated a significant linear effect with means increasing over time, $F(1,6) = 7.59, p = 0.03$. There was no significance found for multiple quadratic trends (Table 5.16). Results of post-hoc comparison analysis using pairwise differences among means showed that participants' social wellbeing scores at follow-up ($M = 23.63, SD = 3.61$) were significantly higher than their scores at baseline ($M = 20.44, SD = 4.03$) and their last-session scores ($M = 21.44, SD = 3.61$). However, no significant difference was found in participants' SWB scores at baseline versus post-test (last session) (Table 5.20). Taken together, this indicates that participation in the DMT sessions helped cancer survivors feel better and more satisfied in their personal relationships, and that these positive feelings were accentuated weeks after their last DMT session. Figure 4.12 illustrates the profile plot for the estimated marginal means for SWB scale scores across the three time points.

Table 5.20

Pairwise Comparisons of Social Wellbeing Scale Scores over Time

SWB Time	SWB Time	Mean Difference	Std. Error	Sig.	95% Confidence Interval for Difference	
					Lower Bound	Upper Bound
1	2	-1.14	1.37	.44	-4.45	2.21
	3	-4.57	1.66	.03*	-8.63	-.51
2	1	1.14	1.37	.44	-2.21	4.50
	3	-3.43	.61	.001*	-4.93	-1.93
3	1	4.57	1.66	.03*	.51	8.63
	2	3.43	.61	.001*	1.93	4.93

* $p < 0.05$

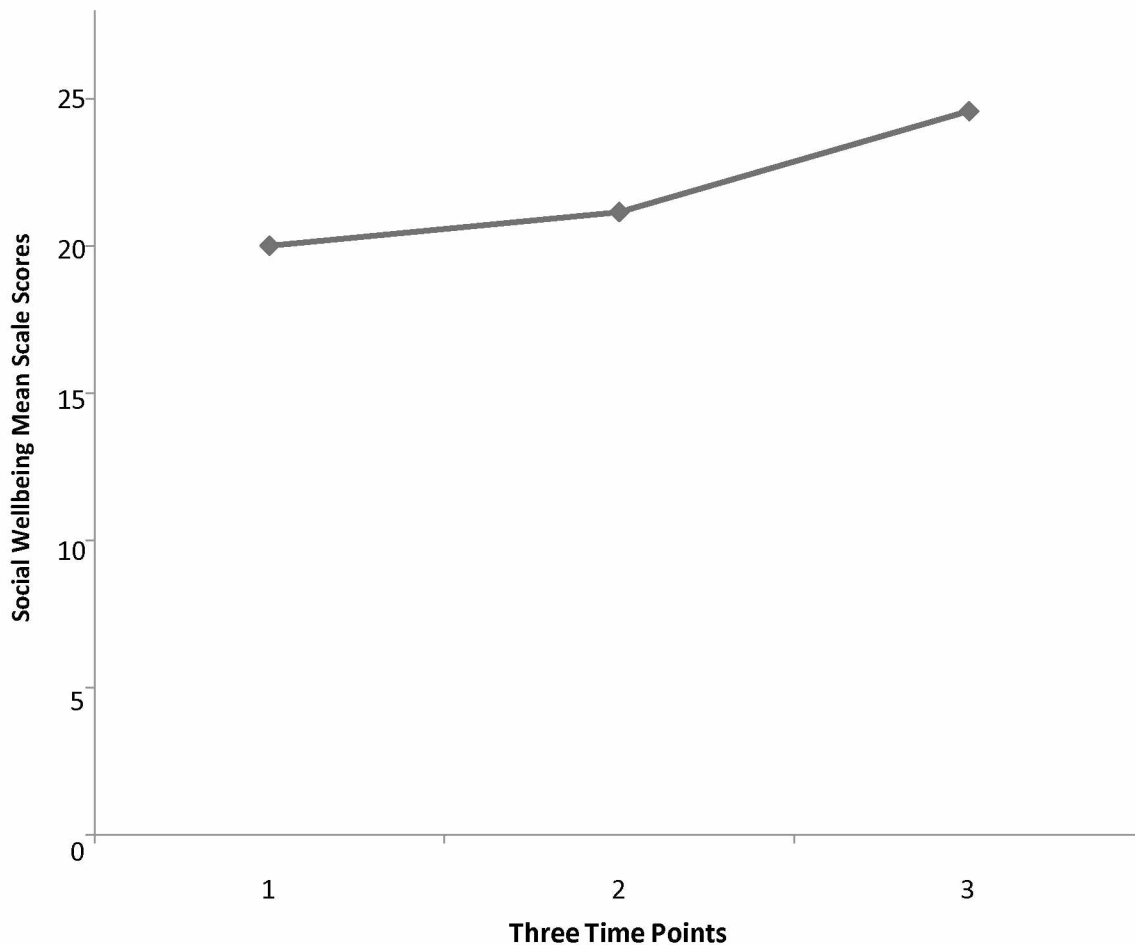


Figure 5.11. Profile plot of participants Social Wellbeing mean scale scores at 3 time points.

Functional Wellbeing (FWB). There was significant effect of time on participants' functional wellbeing (Sphericity Assumed $F(2,12) = 5.97, p = 0.02, \eta^2_p = 0.50$). Follow-up polynomial contrasts indicated significance for both linear ($F(1,6) = 5.97, p = 0.05$) and quadratic effects ($F(1,6) = 6.02, p = 0.05$) (Table 5.18). Results of post-hoc comparison analysis showed that compared to their baseline mean scores ($M = 17.00, SD = 6.08$) participants reported significantly better functional wellbeing at their final session ($M = 19.67, SD = 5.38$) and at follow-up ($M = 21.00, SD = 5.58$) (Table 5.22). This means they reported better ability to function in daily life after the DMT sessions, and that they were able to maintain these positive changes for several weeks after the DMT ended. Figure 5.12 illustrates the profile plot for the estimated marginal means for EWB scale scores across the three time points.

Table 5.21

Pairwise Comparisons of Emotional Wellbeing Scale Scores over Time

EWB Time	EWB Time	Mean Difference	Std. Error	Sig.	95% Confidence Interval for Difference	
					Lower Bound	Upper Bound
1	2	-3.00*	1.11	.04*	-5.72	-.28
	3	-2.00	1.43	.21	-5.50	1.50
2	1	3.00*	1.11	.04*	.28	5.72
	3	1.00	.62	.16	-.51	2.51
3	1	2.00	1.43	.21	-1.50	5.50
	2	-1.00	.62	.16	-2.51	.51

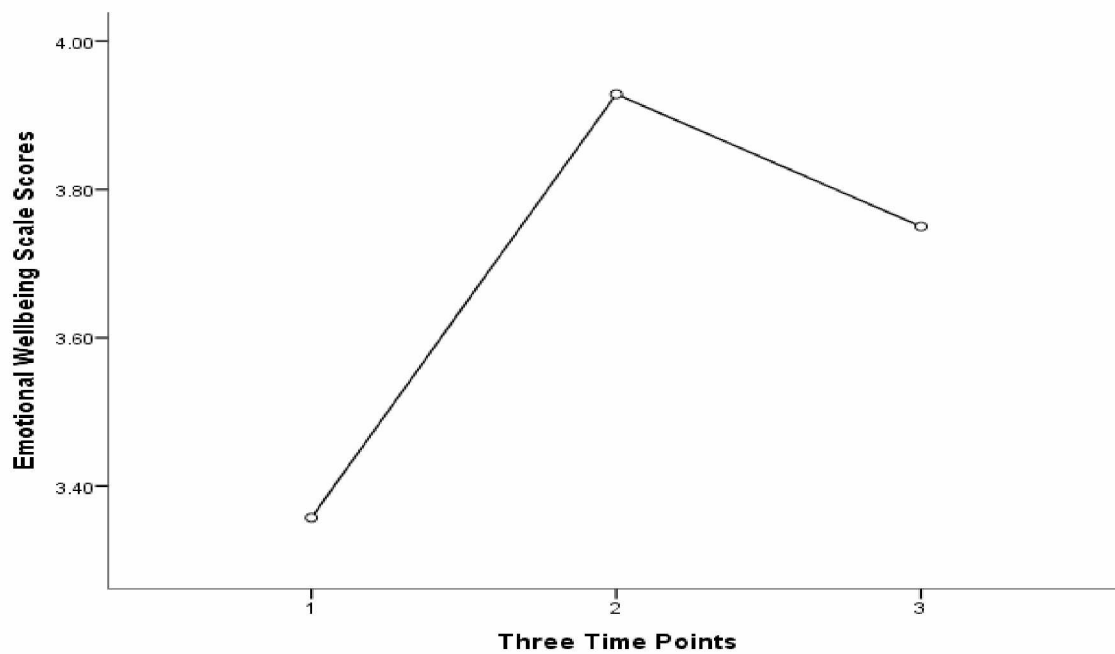
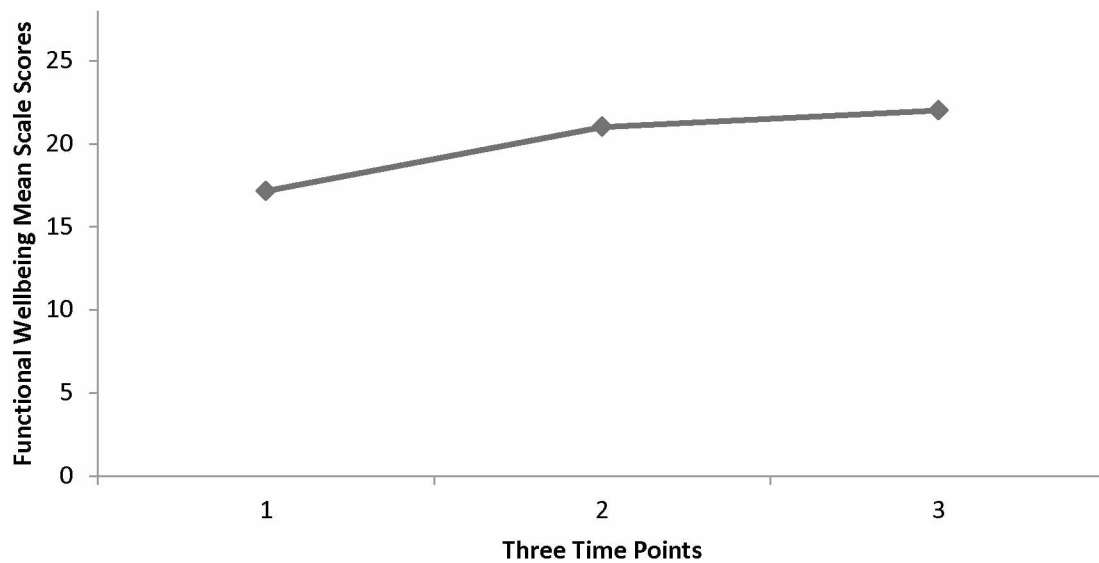
* $p < 0.05$ *Figure 5.12.* Profile plot of participants' Emotional Wellbeing scale scores at 3 time points.

Table 5.22

Pairwise Comparisons of Functional Wellbeing Scale Scores over Time

FW B Time	FWB Time	Mean		Sig.	95% Confidence Interval for Difference	
		Difference	Std. Error		Lower Bound	Upper Bound
1	2	-3.86	1.39	.03*	-7.25	-.46
	3	-5.00	2.05	.05*	-10.01	.01
2	1	3.86	1.39	.03*	.46	7.25
	3	-1.14	.88	.24	-3.31	1.02
3	1	5.00	2.05	.05*	-.01	10.01
	2	1.14	.88	.24	-1.02	3.31

* $p < 0.05$ *Figure 5.13.* Profile plot of participants' Functional Wellbeing scale scores at 3 time points.

5.1.5. Multidimensional Assessment of Interoceptive Awareness (MAIA)

The MAIA is a self-report measure on mind-body interactions, particularly interoceptive awareness or awareness of the body's internal states such as experiences of stress, wellbeing, mood and disposition. It has eight separately scored scales namely: 1) Noticing (NO), 2) Not Distracting (ND), 3) Not Worrying (NW), 4) Attention Regulation (AR), 5) Emotional Awareness (EW), 6) Self-Regulation (SR), 7) Body Listening (BL), and 8) Trusting (TR). A total of twelve participants were included in the pre and post analyses during the DMT program, while seven participants were included in the follow-up evaluation.

Scoring computation for each MAIA scale required taking the average score items of participants (minimum score of 1, maximum score of 5 per scale). Negatively worded items for the two scales Not Distracting and Not Worrying were reverse scored. Thus, higher scores on all the scales mean improved awareness. Group mean scores of participants suggest that over time (baseline to follow-up), their ability to experience their bodies as safe and trustworthy (Trusting), and to actively listen to their body for insight showed the most increase. Table 5.23 shows descriptive statistics of participants' MAIA scale scores at baseline, final session, and follow-up.

Table 5.23

Descriptive Statistics of Participants MAIA Scale Scores over Time

Scales	Baseline <i>M (SD)</i> <i>n = 12</i>	Final <i>M (SD)</i> <i>n = 12</i>	Follow-up <i>M (SD)</i> <i>n = 7</i>
Noticing	3.46 (1.05)	3.94 (1.02)	3.61 (0.90)
Not Distracting	2.10 (1.04)	2.08 (1.14)	1.52 (0.96)
Not Worrying	3.03 (0.77)	2.94 (0.79)	3.43 (0.90)
Attention Regulation	3.22 (0.83)	3.17 (0.96)	3.88 (0.75)
Emotional Awareness	3.61 (0.77)	3.70 (0.92)	3.80 (0.79)
Self-Regulation	3.23 (0.74)	3.49 (0.84)	3.75 (0.52)
Body Listening	2.49 (0.84)	2.69 (0.93)	3.05 (0.97)
Trusting	3.59 (1.04)	3.72 (1.18)	4.29 (0.89)

A paired sample t-test was conducted to evaluate the differences between participants' mean scale scores in their first and last DMT sessions. No statistically significant differences were noted for any of the eight scales (Table 5.24).

Table 5.24

MAIA t-test Results for the Individual Eight Scales (Baseline vs. Final Session)

Outcomes Baseline vs. Final DMT session	Paired Differences				95% Confidence		t	df	Sig. (2-tailed)
	Mean	Std. Deviation	Std. Error Mean	Interval of the Difference Lower	Upper				
Noticing	-.30	.90	.26	-.87	.27	-1.15	11	.28	
Not Distracting	.01	1.30	.38	-.81	.847	.04	11	.97	
Not Worrying	.08	.74	.21	-.39	.55	.39	11	.70	
Attention Regulation	.05	.73	.21	-.41	.52	.26	11	.80	
Emotional Awareness	-.10	.88	.26	-.66	.47	-.38	11	.71	
Self-Regulation	-.26	.62	.182	-.66	.13	-1.48	11	.17	
Body Listening	-.21	.98	.28	-.83	.41	-.74	11	.48	
Trusting	-.14	1.15	.33	-.87	.59	-.42	11	.68	

* $p < 0.05$

5.1.5.1. Follow-up Evaluation

A one-way within-subject ANOVA ($n = 9$) was conducted to examine the effects of time on participants' ability to be aware of their body sensations and experiences (as measured by the eight different MAIA scales) at their baseline, final session, and follow-up. The within-subjects factor is time with three levels (baseline, final session, and follow-up) and the dependent variable is participants' individual scores for each of the eight scales: Noticing (NO), Not Distracting (ND), Not Worrying (NW), Attention Regulation (AR), Emotional Awareness (EA), Self- Regulation (SR), Body Listening (BL), and Trusting (TR) at the three time points. Table 5.25 illustrates the summary of results for tests of within-subject effects for all scales, while Table 5.26 shows the scale summary results for test of within-subjects contrasts.

Table 5.25

Test of Within-Subjects Effects for the Eight MAIA Scale Scores (3 Time points)

Source		Type III Sum of Squares	df	Mean of Squares	F	Sig.	Partial Eta ²	Noncent Parameter	Observed Power
NO	S.A.	1.77	2	.89	3.56	.06	.37	7.13	.55
ND	S.A.	3.52	2	1.76	4.89	.03*	.45	9.77	.69
NW	S.A.	.55	2	.28	.43	.66	.07	.85	.10
AR	S.A.	1.63	2	.82	2.50	.12	.29	5.01	.41
EA	S.A.	.86	2	.43	1.01	.39	.14	2.02	.19
SR	S.A.	1.20	2	.60	5.03	.03*	.46	10.05	.70
BL	S.A.	.66	2	.33	.92	.43	.13	1.83	.17
TR	S.A.	2.20	2	1.10	3.55	.06	.37	7.09	.55

* $p < 0.05$; Sphericity Assumed (S.A.), N = 7

Table 5.26

Test of Within-Subjects Contrasts for MAIA, Domain Scores (3 Time points)

Source		Type III Sum of Squares	df	Mean of Squares	F	Sig.	Partial Eta ²	Noncent Parameter	Observed Power
NO									
Linear		.15	1	.15	.90	.38	.13	.90	.13
Quadratic		1.63	1	1.63	4.87	.07	.45	4.87	.48
ND									
Linear		3.50	1	3.50	9.00	.02*	.60	9.00	.71
Quadratic		.02	1	.02	.07	.80	.01	.07	.06
NW									
Linear		.29	1	.29	.30	.60	.05	.30	.08
Quadratic		.27	1	.27	.78	.41	.12	.78	.12
AR									
Linear		1.43	1	1.43	8.53	.03*	.59	8.53	.68
Quadratic		.20	1	.20	.42	.54	.07	.42	.09
EA									
Linear		.82	1	.82	1.50	.27	.20	1.50	.18
Quadratic		.04	1	.04	.13	.73	.02	.13	.06
SR									
Linear		.54	1	.54	3.27	.12	.35	3.27	.33
Quadratic		.66	1	.66	9.00	.02*	.60	9.00	.71
BL									
Linear		.64	1	.64	1.60	.25	.21	1.60	.19
Quadratic		.02	1	.02	.07	.80	.01	.07	.06
TR									
Linear		1.14	1	1.14	3.30	.12	.36	3.30	.33
Quadratic		1.06	1	1.06	3.86	.10	.39	3.86	.38

* $p < 0.05$; N = 7

Noticing. There was no significant time effect on participants' ability to be aware of their body sensations Sphericity Assumed, $F(2,12) = 3.56, p = 0.061, \eta^2_p = 0.37$). Follow-up polynomial contrasts indicated no significance for either linear $F(1,6) = 0.90, p = 0.38$, and quadratic effects effect $F(1,6) = 4.87, p = 0.07$. Results of post-hoc comparison analysis (pairwise comparisons) showed that there were no significant differences between participants' baseline, final and their follow-up mean scores (Table 5.27). Figure 5.15 illustrates the profile plot for the estimated marginal means for the Noticing scale scores across the three time points

Table 5.27

Pairwise Comparisons of Noticing Scale Scores over Time

Noticing Time (I)	Noticing Time (J)	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval for Difference	
					Lower Bound	Upper Bound
1	2	-.69	.31	.06	-1.44	.05
	3	-.21	.22	.38	-.73	.32
2	1	.69	.31	.06	-.05	1.44
	3	.49	.27	.12	-.18	1.15
3	1	.21	.22	.38	-.32	.73

* $p < 0.05$; No adjustments (LSD)

Not Worrying. There was no significant difference in participants' tendency to feel emotional distress or worry when experiencing pain in their bodies (Sphericity Assumed), $F(2,12) = 0.43, p = 0.66, \eta^2_p = 0.07$ before and after their DMT sessions. Follow-up polynomial contrasts did not yield a significant linear $F(1,6) = 0.30, p = 0.60$ or quadratic effect $F(1,6) = 0.78, p = 0.41$. Results of post-hoc comparison analysis (pairwise comparisons) showed that there was no significant difference among participants' baseline, final and follow-up mean scores for this scale (Table 5.29). Figure 5.17 illustrates the profile plot for the estimated marginal means for the Not Worrying scale scores across three time points.

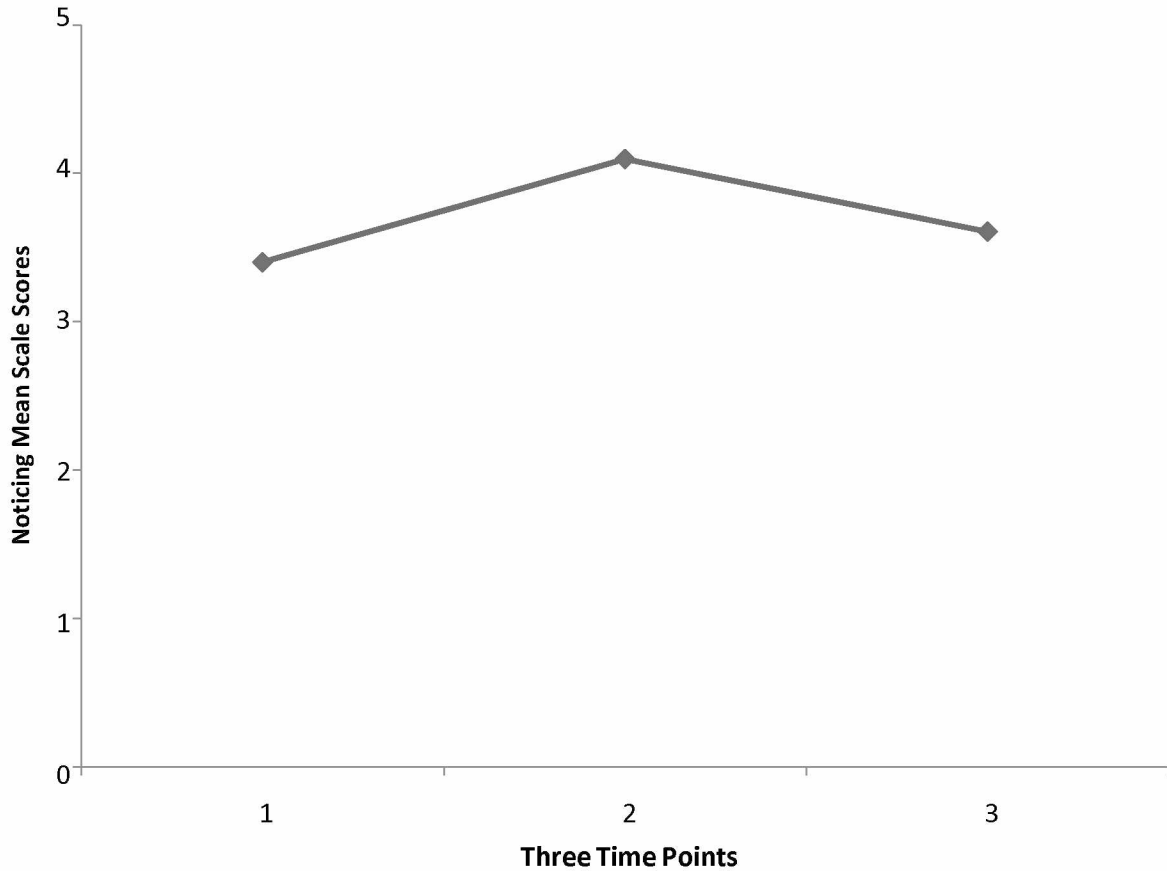


Figure 5.14. Profile plot of participants' Noticing mean scale scores at 3 time points.

Not Distracting. There was a significant increase on participants' tendency to avoid, distract or ignore body pain or discomfort they experienced in their bodies (Sphericity Assumed), $F(2,12) = 4.89$, $p = 0.03$, $\eta^2_p = 0.45$. Because the items for this scale are negatively worded (ex. "I do not notice (I ignore) physical tension or discomfort until they become severe."), lower scores actually would suggest that participants' tendency to use distraction to cope with uncomfortable body experiences increased after the DMT intervention. Follow-up polynomial contrasts indicated a significant linear effect, with means decreasing over time, $F(1,6) = 9.00$, $p = 0.02$. No significant quadratic effect was found $F(1,6) = 0.07$, $p = 0.80$. Results of post-hoc comparison analysis (pairwise comparisons) showed that there was a significant difference among participants baseline ($M = 2.52$, $SD = 1.12$) and follow-up ($M = 1.53$, $SD = 0.96$) mean scores (Table 5.28). Figure 5.16 illustrates the profile plot for the estimated marginal means

for the Not Distracting scale scores across three time points Figure 5.16 illustrates the profile plot for the estimated marginal means for the Not Distracting scale scores across three time points.

Table 5.28

Pairwise Comparisons of Not Distracting Scale Scores over Time

Not Distracting	Not Distractin Time	Mean Difference	Std. Error	Sig.	95% Confidence Interval for Difference	
					Lower Bound	Upper Bound
1	2	.57	.29	.10	-.13	1.28
	3	1.00	.33	.02*	.18	1.82
2	1	-.57	.29	.10	-1.28	.13
	3	.43	.34	.25	-.40	1.26
3	1	-1.00	.33	.02*	-1.82	-.18
	2	-.43	.34	.25	-1.26	.40

* $p < 0.05$; No adjustments (LSD)

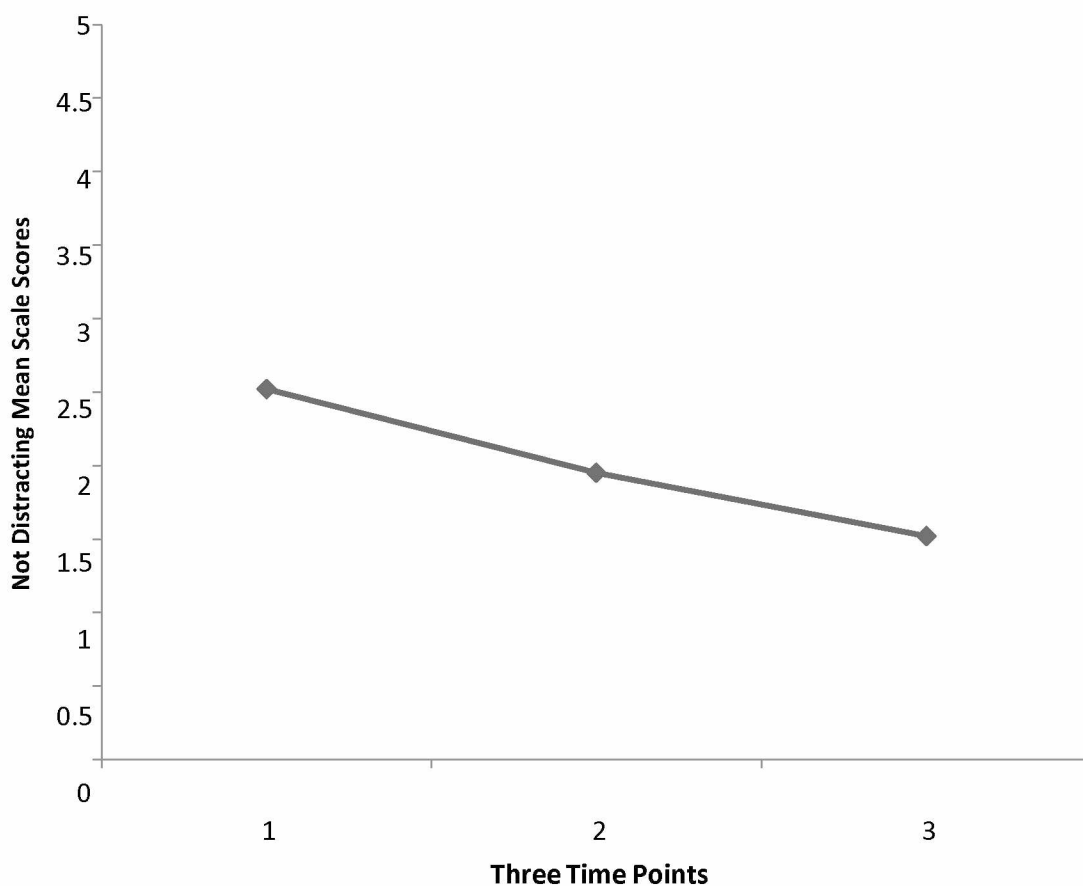


Figure 5.15. Profile plot of participants' Not Distracting mean scale scores at 3 time points.

Table 5.29

Pairwise Comparisons of Not Worrying Scale Scores over Time

Not Worrying Time	Not Worrying Time	Mean Difference	Std. Error	Sig.	95% Confidence Interval for Difference	
					Lower Bound	Upper Bound
1	2	.10	.32	.77	-.68	.87
	3	-.29	.52	.60	-1.56	.99
2	1	-.10	.32	.77	-.87	.68
	3	-.38	.43	.41	-1.43	.66
3	1	.29	.52	.60	-.99	1.56
	2	.38	.43	.41	-.66	1.43

* $p < 0.05$; No adjustments (LSD)

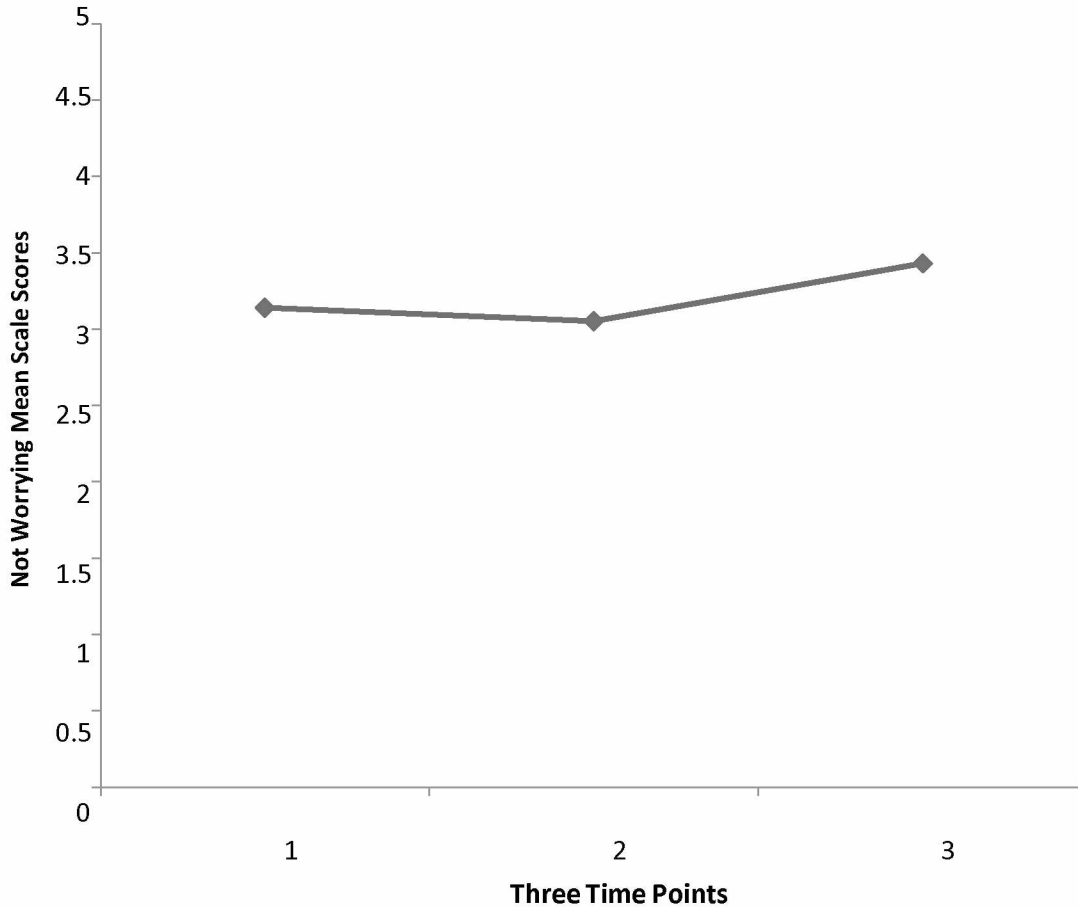


Figure 5.16. Profile plot of participants' Not Worrying mean scale scores at 3 time points.

Attention Regulation. There was no significant difference in participants' ability to sustain and control attention to their body sensations at baseline, final session, and follow-up, Sphericity Assumed $F(2,12) = 2.50, p = 0.12, \eta^2_p = 0.29$. Follow-up polynomial contrasts showed a significant linear effect, with means increasing over time, $F(1,6) = 8.53, p = 0.03$. There was no significant quadratic effect $F(1,6) = 0.42, p = 0.42$. Results of post-hoc comparison analysis (pairwise comparisons) showed that there was a significant increase in participants' attention regulation scores from baseline ($M = 3.24, SD = 1.04$) to follow-up ($M = 3.88, SD = 0.75$) (Table 5.30). Figure 5.18 illustrates the profile plot for the estimated marginal means for the Attention Regulation scale scores across three time points.

Table 5.30

Pairwise Comparisons of Attention Regulation Scale Scores over Time

Attention Regulation n	Attention Regulation n	95% Confidence Interval for Difference				
		Mean				
Time	Time	Difference	Std. Error	Sig.	Lower Bound	Upper Bound
1	2	-.11	.34	.75	-.94	.72
	3	-.64	.22	.03*	-1.17	-.10
2	1	.11	.34	.75	-.72	.94
	3	-.53	.34	.17	-1.36	.31
3	1	.64	.22	.03*	.10	1.17
	2	.53	.34	.17	-.31	1.36

* $p < 0.05$; No adjustments (LSD)

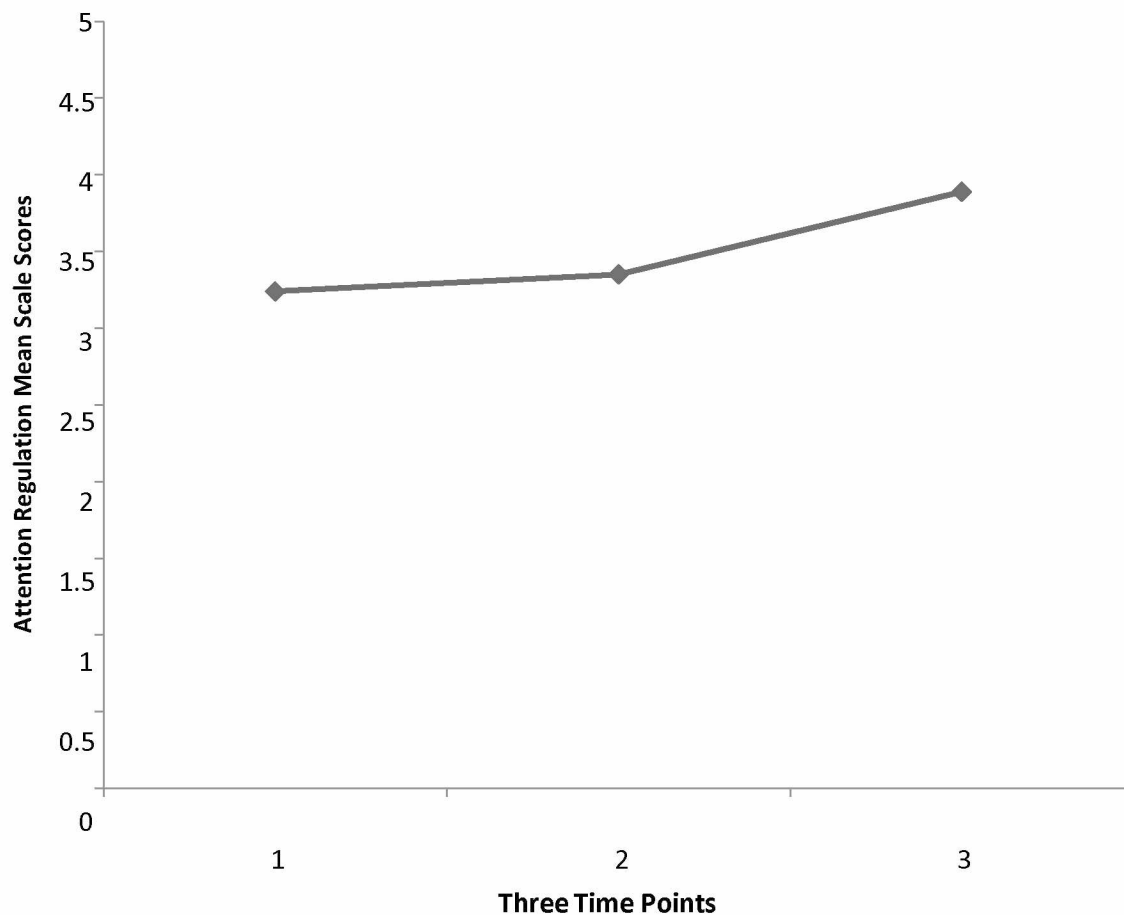


Figure 5.17. Profile plot of participants' Attention Regulation mean scale scores at 3 time points.

Emotional Awareness. Participants' awareness of the connection between their body experiences and emotional states did not show any significant change over time with the DMT intervention, Sphericity Assumed $F(2,12) = 1.01, p = 0.39, \eta^2_p = 0.14$. Follow-up polynomial contrasts showed neither linear $F(1,6) = 1.52, p = 0.27$ or quadratic $F(1,6) = 0.13, p = 0.73$ significant effects. Results of post-hoc comparison analysis (pairwise comparisons) showed that there was no significant difference in mean scores at baseline, final session and follow-up (Table 5.32). Figure 5.19 illustrates the profile plot for the estimated marginal means for the Emotional Awareness scale scores across three time points.

Table 5.31

Pairwise Comparisons of Emotional Awareness Scores over Time

Emotional Awareness Time	Emotional Awareness Time	Mean Difference	Std. Error	Sig.	95% Confidence Interval for Difference	
					Lower Bound	Upper Bound
1	2	-.33	.39	.42	-1.28	.62
	3	-.48	.40	.27	-1.45	.48
2	1	.33	.39	.42	-.62	1.28
	3	-.15	.24	.55	-.73	.43
3	1	.48	.40	.27	-.48	1.45
	2	.15	.24	.55	-.43	.73

* $p < 0.05$; No adjustments (LSD)

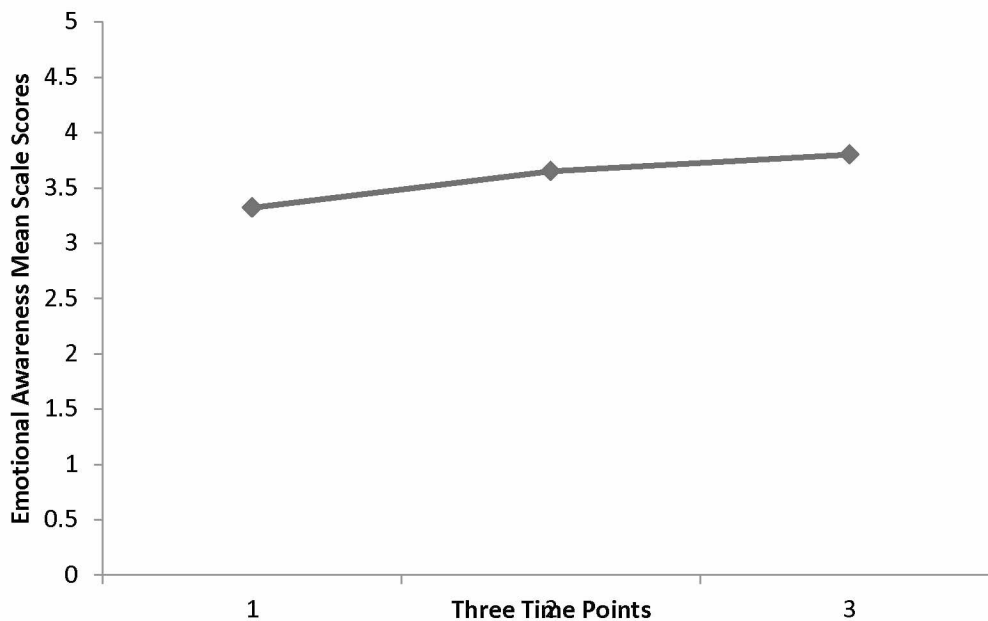


Figure 5.18. Profile plot of participants' Emotional Awareness mean scale scores at 3 time points.

Self-Regulation. There was a significant difference in participants' ability to self-regulate over time as they attended the DMT sessions, (Sphericity Assumed) $F(2,12) = 5.03, p = 0.03, \eta^2_p = 0.46$. Follow-up polynomial contrasts showed no significant linear effects $F(1,6) = 1.52, p = 0.27$. Higher-order polynomial contrasts showed significant quadratic effects, with a single downward curve, at $F(1,6) = 9.00, p = 0.02$. Results of post-hoc comparison analysis (pairwise comparisons) showed that there was significant increase in self-regulation scores from baseline ($M = 3.56, SD = 0.75$) to the final session ($M = 3.75, SD = 0.52$) (Table 5.32). Figure 5.20 illustrates the profile plot for the estimated marginal means for the Self-Regulation scale scores across the three time points. Overall, results indicate that participants' ability to regulate their psychological distress by paying attention to their body sensations significantly increased while they were part of the DMT intervention. Although participants still exhibited higher mean scores at follow-up for this scale compared to their baseline mean scores, their highest scores at their final DMT session suggests that they were able to self-regulate their psychological distress the most while they were attending the DMT sessions.

Table 5.32

Pairwise Comparisons of Self-Regulation Scale Scores over Time

Self Regulation Time (I)	Self Regulation Time (J)	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval for Difference	
					Lower Bound	Upper Bound
1	2	-.57	.17	.02*	-.99	-.16
	3	-.39	.22	.12	-.92	.14
2	1	.57	.17	.02*	.16	.99
	3	.18	.16	.31	-.22	.57
3	1	.39	.22	.12	-.14	.92
	2	-.18	.16	.31	-.57	.22

* $p < 0.05$; No adjustments (LSD)

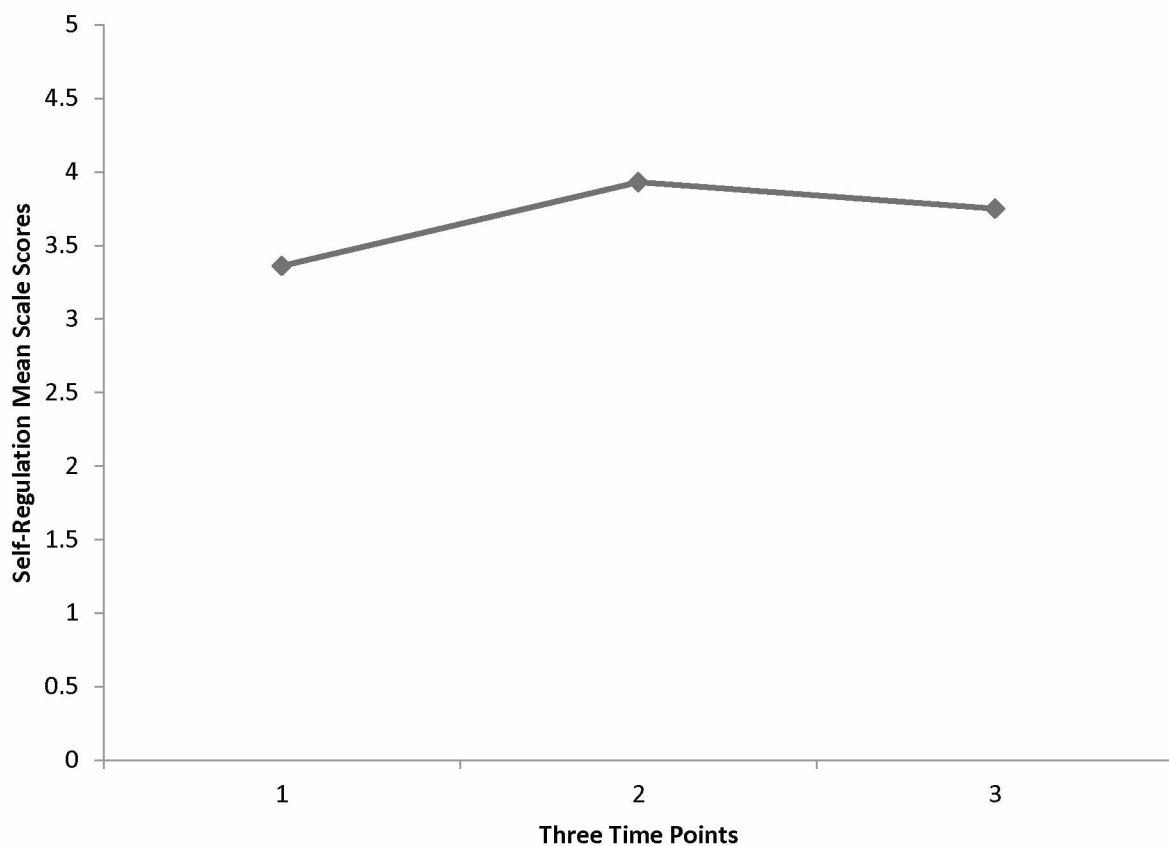


Figure 5.19. Profile plot of participants' Self-Regulation mean scale scores at 3 time points.

Body Listening. There was no significant change over time in participants' ability to actively listen to their bodies for insight, (Sphericity Assumed) $F(2,12) = 0.92, p = 0.43, \eta^2_p = 0.13$. Follow-up polynomial contrasts showed no significant linear $F(1,6) = 1.60, p = 0.25$, nor quadratic effects $F(1,6) = 0.07, p = 0$.

80. Results of post-hoc comparison analysis (pairwise comparisons) did not yield any significant differences in participants' body listening mean scores across baseline, final session, and follow-up (Table 5.33). Figure 5.21 illustrates the profile plot for the estimated marginal means for the Body Listening scale scores across three time points.

Table 5.33

Pairwise Comparisons of Body Listening Scale Scores over Time

Body Listening Time	Body Listening Time	Mean Difference	Std. Error	Sig.	95% Confidence Interval for Difference	
					Lower Bound	Upper Bound
1	2	-.14	.36	.70	-1.01	.73
	3	-.43	.34	.25	-1.26	.40
2	1	.14	.36	.70	-.73	1.01
	3	-.29	.27	.33	-.94	.37
3	1	.43	.34	.25	-.40	1.26
	2	.29	.27	.33	-.37	.94

* $p < 0.05$; No adjustments (LSD)

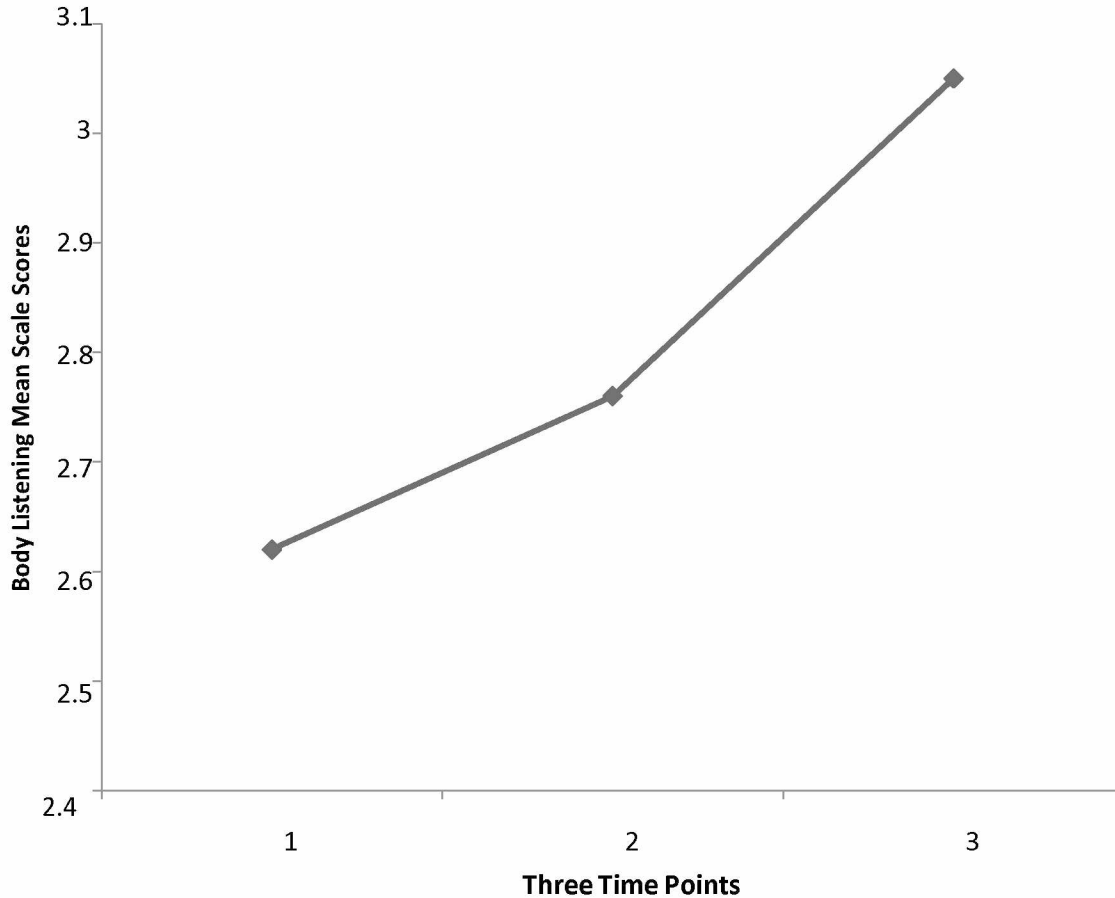


Figure 5.20. Profile plot of participants' Body Listening mean scale scores at 3 time points.

Trusting: No significant change was observed in participants' ability to trust their bodies as safe and trustworthy, (Sphericity Assumed) $F(2,12) = 3.55, p = 0.06, \eta_p^2 = 0.37$. Follow-up polynomial contrasts showed no significant linear $F(1,6) = 3.30, p = 0.12$, nor quadratic effects $F(1,6) = 3.86, p = 0.10$. Results of post-hoc comparison analysis (pairwise comparisons) did not yield any significant differences in participants' trusting mean scores at baseline, final and final sessions (Table 5.34). Figure 5.22 illustrates the profile plot for the estimated marginal means for the Body Listening scale scores across three time points.

Table 5.34

Pairwise Comparisons of Trusting Scale Scores over Time

Trusting Time	Trusting Time	Mean Difference	Std. Error	Sig.	95% Confidence Interval for Difference	
					Lower Bound	Upper Bound
1	2	-.76	.39	.10	-1.72	.19
	3	-.57	.32	.12	-1.34	.20
2	1	.76	.39	.10	-.19	1.72
	3	.19	.12	.17	-.11	.49
3	1	.57	.32	.12	-.20	1.34
	2	-.19	.12	.17	-.49	.11

* $p < 0.05$; No adjustments (LSD)

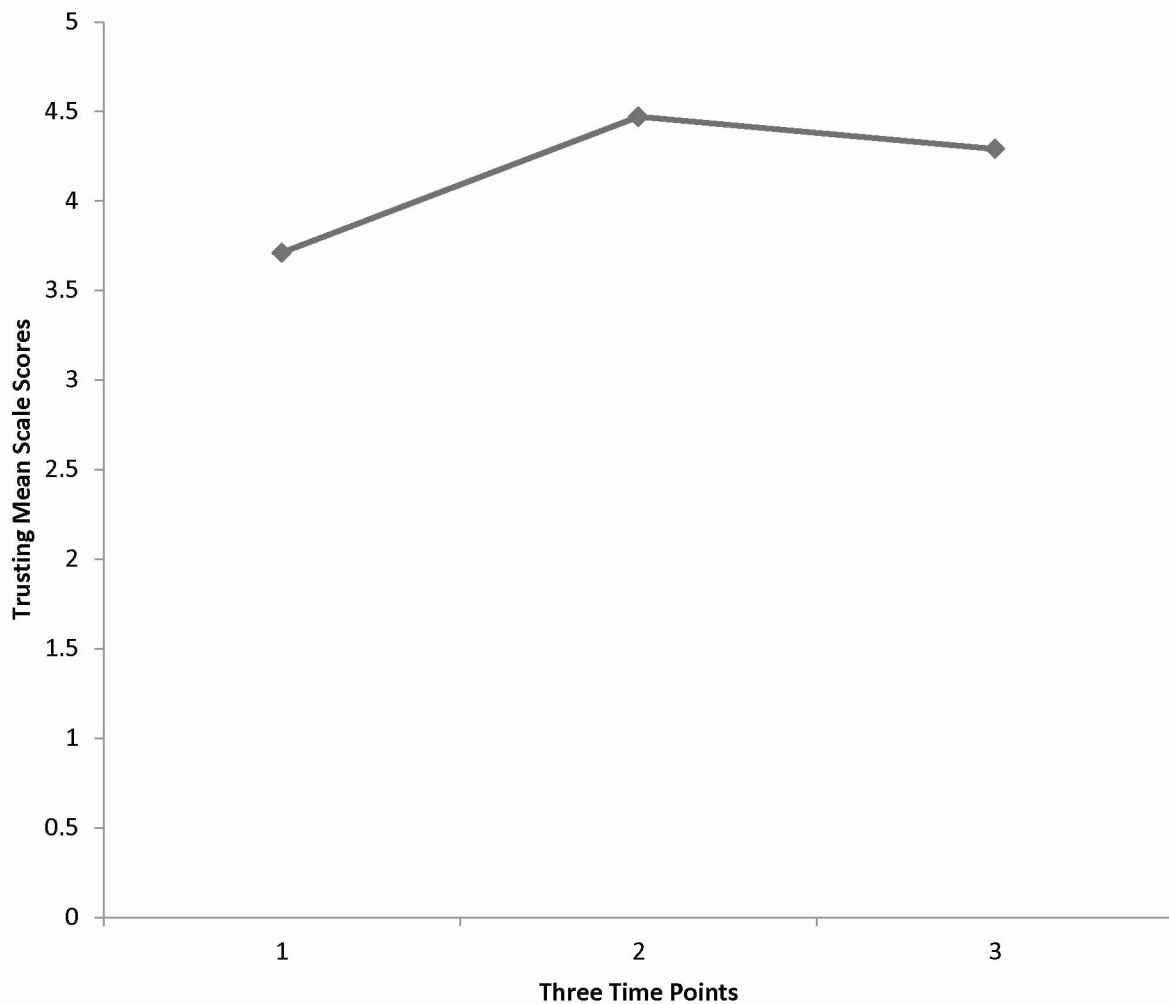


Figure 5.21. Profile plot of participants' Trusting mean scale scores at 3 time points.

5.1.6. Caregivers Quality of Life Index (CQOLI)

This measure assessed caregivers' physical, social, emotional and financial aspects of wellbeing. It has four factors: 1) Burden, 2) Disruptiveness, 3) Positive Adaptation, and 4) Financial Concerns. Higher scores mean participants are reporting better wellbeing. Three informal cancer caregivers participated in the study. From these three, only one participated in Phase 2 (Follow-up) of the study. Results indicate that the caregivers actually reported lesser quality of life after participation in the DMT sessions. Due to the extremely small sample size, inferential statistical analyses were not conducted for this measure.

During the DMT program, two of the caregivers were experiencing bereavement issues. One caregiver reported being concerned about a younger brother who was dying of a chronic illness and was told to “get his affairs in order.” Additionally, the same participant expressed worries about a foster son who recently lost his wife and could potentially lose custody of their five-year-old daughter. Although these caregivers subjectively expressed that the DMT program helped them, their final scores on the Caregivers’ Quality of Life Index were lower than their baseline scores. Table 5.34, provides Caregivers’ CQOLI Total Scores, means and standard deviations.

Table 5.35

Descriptive Statistics of Informal Caregivers CQOLI (Total and Domain Scales)

CQOLI	Baseline <i>M</i> (SD) N = 3	Final <i>M</i> (SD) N = 3	Follow-up <i>M</i> (SD) N = 1
Total Score	41.33 (8.96)	35.00 (20.88)	35.00 (0)
Burden	8.67 (2.08)	10.67 (13.42)	10.00 (0)
Disruptiveness	5.33 (0.58)	4.33 (2.08)	8.00 (0)
Positive Adaptation	17.00 (0)	13.00 (7.07)	6.00 (0)
Financial Concerns	4.00 (4.00)	2.00 (2.00)	2.00 (0)

5.2 Qualitative Data Analyses and Findings

Sources for qualitative data included the following: 1) open-ended questionnaire, 2) content analysis of transcribed audio-recorded sessions, and 3) field notes of the primary researcher and two student research assistants.

5.2.1. Open-Ended Questionnaire

Participants completed an open-ended questionnaire at the end of each DMT session. The questions assessed DMT subjective experiences. The questionnaire comprised four questions. The first question was close-ended and asked participants: “Compared to how you felt before today’s DMT session, how do you feel now?” a) better, b) same, c) worse). The remaining three questions were open-ended and

pertained to how participants thought the sessions influenced their feelings, suggestions or requests they had for the DMT sessions, and asked for any additional information they wanted to share.

5.2.2. Findings

All of the participants consistently reported that they felt better after each DMT session throughout the entire 12 week DMT program. For the three remaining open-ended questions (how DMT influenced their feelings, suggestions, and additional sharing), a directed content analysis approach was employed to validate Ferrell's (1998a) quality of life framework (Hsieh & Shannon, 2005). Directed content analysis is a structured approach in which key concepts or variables are used and operationalized based from an existing theory or framework (Hsieh & Shannon, 2005).

Using Ferrell's Quality of Life (QOL) framework (1998a), participants' responses were organized and categorized according to the four components of Ferrell's QOL: 1) Physical Wellbeing, 2) Psychological Wellbeing, 3) Social Wellbeing, and 4) Spiritual Wellbeing (Ferrell, 1996). These four components were used as pre-determined codes for organizing participants' responses. Two coders, the primary dissertation advisor and her dissertation chair, individually coded responses. They then compared their coding and discussed discrepancies to arrive at a consensus (Figure 5.23). For other data that did not fit with the pre-determined categories, new codes were developed.

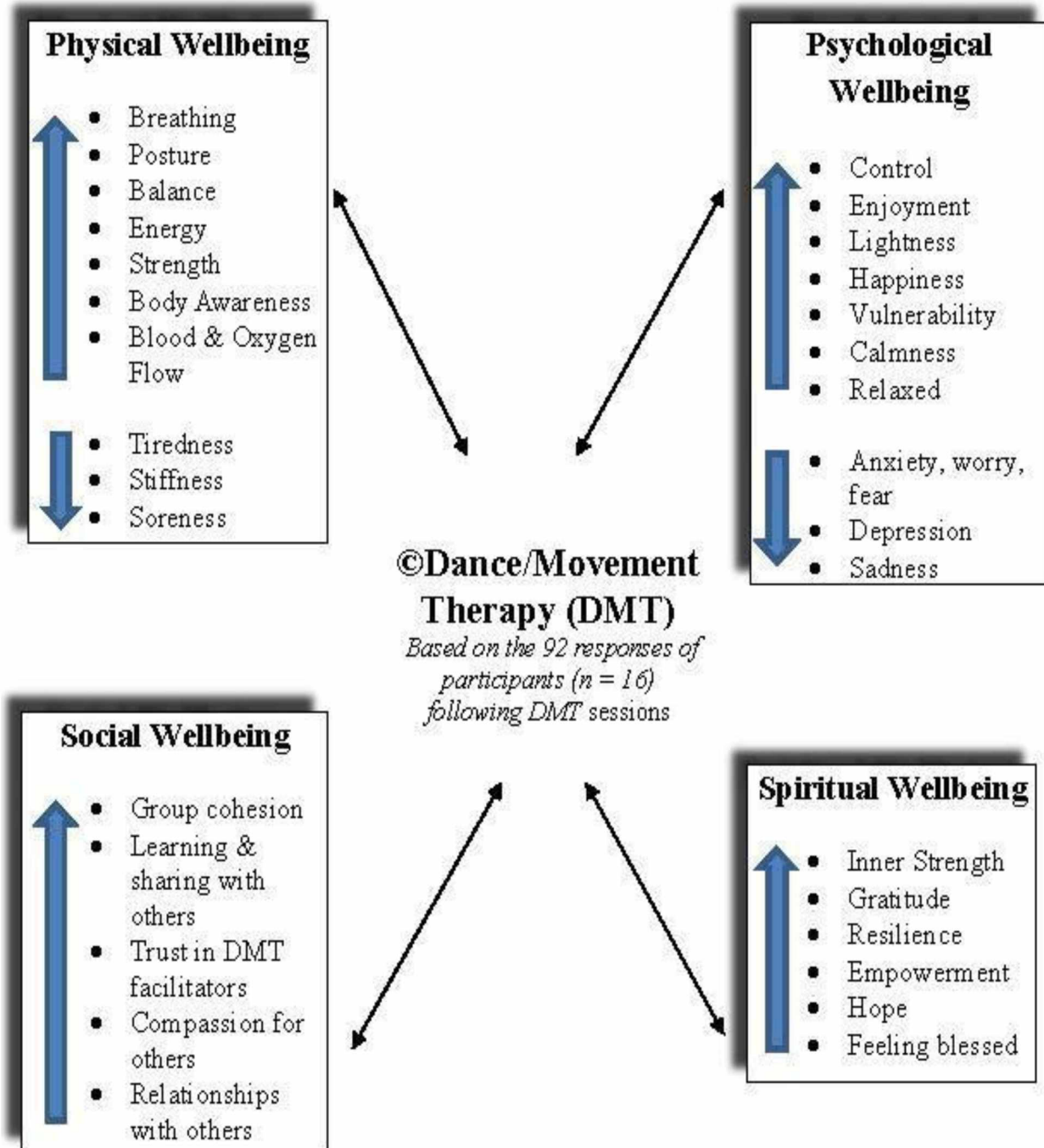


Figure 5.22. DMT Qualitative findings as applied to Ferrell's (1998) QOL Model

Physical Wellbeing. Ferrell (1998a, p. 566) defines physical wellbeing as the “control or relief of symptoms and maintenance of function and independence.” This includes functional activities, sleep cycles, experiences of pain, strength, and overall physical health. All participant responses pertaining to body functions and physical health were coded as physical wellbeing.

Twelve participants expressed that the DMT sessions helped promote their physical wellbeing. Physical benefits described included: better breathing, improved posture and balance, increased energy and/or being less tired, feeling stronger, greater body awareness, less stiffness and muscle soreness, less body pains, and feeling an increased blood and oxygen flow and oxygen in their system. Below are some selected responses of four cancer survivors and two informal caregivers. The following responses illustrate how participants felt about how DMT impacted their physical wellbeing.

“The dancing increased the blood flow and oxygen and improved my brain chemistry. More aware of self – breathing and tension in body. Remembering to breathe and think of how I am feeling.”

“Feels good to be whole body again.”

“The exercise helped the sore muscle to stretch and relax more. I was in some pain but I’m alright after our cool down and sharing time.”

“I felt physically sick when I came but I feel so much better.

“The dancing exercise is always good for the mind and body.”

“This has helped me deal better with stress, and my balance has really improved.”

Psychological Wellbeing. According to Ferrell & Hassey-Dow (1997) psychological wellbeing pertains to being able to maintain a sense of control while faced with life-threatening illness. This is characterized by a reduction of emotional distress and fear of the unknown, altered life priorities, as well as positive life changes (Ferrell & Hassey-Dow, 1997). Participants’ responses related to having a sense of control, reducing anxiety, worries, depression, fears and increased enjoyment were coded to Psychological Wellbeing.

All 16 participants reported emotional benefits and feeling “lighter, “less sad,” and “happier” after participating in the DMT sessions (“Cheers me up. I feel really good!). The following quotes illustrate these benefits:

“Uplifted me and helped my sadness. I am so happy we have this class! I’m already signing up for next session!!!”

“Uplifting and positive, helps me to look at life in a happier way.”

Participants also reported that they were becoming more in touch with their emotions including feelings of vulnerability, and relaxation as revealed in the following quotes:

“More aware of body and emotional self. It’s OK to be vulnerable. Movement has helped me feel calm and stronger.”

“They have helped a LOT. I am feeling better about things in general and about myself.”

A participant also expressed becoming calmer and stronger because of the movement component of the DMT (“Movement has helped me feel calm and stronger.”).

Social Wellbeing. As codified by Ferrell (1997), social wellbeing included participants’ feelings about their relationships, support they receive from others, and their social activities. In general, responses related to the effects of the group on participants’ relationships and roles (Ferrell & Hasey- Dow, 1997) were coded as social wellbeing.

Fifteen (15) participants reported experiencing social benefits from DMT sessions that included: enjoying meeting others, moving, learning, and sharing with each other. The following quotes illustrate social wellbeing:

“Knowing others are going through similar experiences helps me know how much support I can have. I feel release of myself and enjoy shared energy and support.”

“Movement, music, sharing in the group, listening and learning from others.”

Additionally, participants revealed how the DMT group and group facilitator (primary investigator) offered opportunities for receiving and providing mutual support.

“Support of other people. Guidance of Dinje (sic). The dance.”

“Made me realize that others may be worse off and that I am in relatively good shape. I can offer hugs and help others make it. Helped me to feel helpful, like giving others hugs.”

“I have made a new relationship with an old friend from 40 years ago.”

Spiritual Wellbeing. Ferrell and Dow (1997) defined spiritual wellbeing as being hopeful and able to derive meaning from the cancer experience. As such, participants’ responses related to inner strength, religiosity, transcendence, uncertainty, hope and the meaning of illness were coded to spiritual wellbeing. Five participants shared how the DMT sessions helped them feel more grateful, resilient, empowered, hopeful, and blessed, as illustrated by the following quotes:

“Today was another blessed day in session. It influenced my heart with joy!

“Re-focusing on wellness, mental and spiritual growth... Leaving behind wounded child; unloved. Taking with me love, acceptance, and hope. Leaving behind also love for each member and leader.”

“Sharing with each other; the energy, love, compassion, humor, appreciation and respect that emanates from this special group is priceless. One goes away feeling empowered and renewed with hope . . . I have been empowered, strengthened, supported and live with renewed HOPE!”

“To continue to share in dance and drawing from our inner wellspring.”

“My outlook in life has improved. I believed that things will work out even if I don’t believe it at first.”

Other codes that emerged during analysis. Participants provided suggestions related to the DMT format and logistics. They also shared about their personal circumstances, feelings toward the primary

investigator, future hopes for the group and their appreciation for being able to take part in the DMT program. Below are the themes that emerged from analyzing participants' responses:

DMT format: 11 participants expressed satisfaction in having a mix of movement and sharing.

"It's handled well. Like the mix of dancing and talking. Continue what you are doing! It's great!"

"I like the way it is going. Enjoy the dancing – keep on doing what we are doing and keep them going. The dancing helps to relieve stress and also our sitting. Conversations are great, talking about issues that have happened and letting loose of the stress."

Logistics: A participant requested variety in snacks, music ("more hip-hop music, Pitt Bull"). Two participants suggested a larger space for movement while one participant requested more frequent DMT sessions ("daily . . . more sessions").

Personal Contexts: Eight participants (6 survivors and 2 caregivers) provided comments that revealed the personal context from which they were taking part in the DMT program. Three participants offered more information about their cancer diagnosis and treatments.

"I forgot to say I haven't had to take any prescribed meds for cancer."

"Just took an ECG on Wednesday as a follow-up from body scan showing something. Dr. X will see results and let me know – shortness of breath/sit, fatigue??"

"Forgot to mention I was diagnosed with Stage 2 breast cancer."

One survivor shared an emotional issue related to her cancer and how DMT was helpful:

"Really struggling with depression over my recovery process. I am getting help."

One caregiver and one cancer survivor expressed grief about loved ones who passed away due to cancer:

"I am two weeks away from my first year when my care-giving ended."

"My middle daughter recently died from brain cancer. Still trying to cope with middle-daughter's death – I think session Hospice and this group helps."

One caregiver expressed concerns about loved ones who were dealing with health and personal problems.

“I am worried about one of my brothers. He has to have another surgery in the next few months and has been told to get his affairs in order. I shared so much. Asking for prayer for my brother and my foster child.”

Keeping connected. Seven participants expressed their desire for the DMT group to continue to meet and to stay connected, as illustrated by the following two quotes:

“To continue to explore ways of relaxation and connection with others.”

“After the final session this evening, I see or feel that there is a need for this group session to continue in some way. I hope you get a grant to continue on.”

Desire to help others. Participants also expressed how DMT provided the opportunity to help others:

“Thank you for providing this opportunity. This is a seed and we need to help you grow. Our group and many others in Fairbanks NEED this group!”

“That if it’s possible we help others who may need to talk about surviving the cancer scares of the unknown.”

Appreciation for the DMT session and the DMT group facilitator. Seven (7) participants expressed the following about their thankfulness for the DMT sessions:

“Thank you for the opportunity to participate. Thank you for all your work, energy, and time you and staff put into this group. You DO make a difference in lives!!!”

“I think the emotional journey of cancer doesn’t get as much attention as the physical. Thank you for doing this.”

“Just so grateful to be a part of this group – very emotional about the end. But so very blessed to have been a part of this.”

“ Dinghy, Mariah and Maddie did a wonderful job guiding and developing this class. I’m so grateful I had the chance to be a part of this. Dinghy is a kind and gentle soul and will do amazing in her future. Please, please, please do more!!! So very important!”

5.2.3. Session Themes and Group Field Notes

The primary investigator/facilitator listened, partially transcribed and analyzed the content of each of the DMT session (sharing component) audio-recordings. Transcribed notes from each DMT session were integrated with the session field notes of the primary investigator and her two undergraduate student research assistants. A summary of themes that evolved from content in each DMT session is presented in Table 5.36.

Session Themes of the DMT Program (12 Sessions)

Session #:	Group Description and Themes
1	Listening to our Bodies
2	Sail Away Stress. . . Sail Away Cancer
3	Letting Go
4	Acceptance of Grief and Providing Support
5	Group Harmony and Strength
6	Connection and Community
7	Instilling Hope and Sharing Love
8	We Will Carry the Burden With You
9	Knocking Down Cancer, Making Healthier Choices
10	There is Hope in Our Journey, No Matter How Hard It Is
11	We Are Survivors, We Are Grateful
12	This Too Shall Pass. . . Healing and Strength

Session 1: Listening to Our Bodies.

The first session focused on building trust within the group and modeling safe movements. During the session’s warm-up activity, participants were encouraged to sit down or to hold on to the wall or a chair for support if they felt out of balance. During the “Circle Dance” and movement improvisations, participants were instructed that all movements were acceptable as long as these did not hurt them or

others. They were constantly prompted to be mindful of their bodies and to engage in safe, gentle, slow movements and to sit down when they were out of breath.

The facilitator modeled safe movements and provided slow counts to help participants with regulation. Nevertheless, participants appeared eager and moved with little awareness of what was “too much” for them in terms of the limited stamina and flexibility. This was confirmed when participants appeared out of breath and admitted that they had over-exerted themselves after moving to one song. They were somewhat surprised at how easily they felt tired and seemed relieved that the remainder of the session was conducted while seated. Session one concluded with slow breathing exercises and cool-down movements during which participants were prompted to pay attention to their bodies.

Session 2: Sail Away Stress, Sail Away Cancer.

During the 2nd session, participants were encouraged to use movement imageries and express their feelings through a simple movement. Balloons were used to facilitate focus and connection with each other by gently passing the balloon to one another while engaging in eye contact. During group sharing participants discussed their cancer diagnoses and experiences dealing with cancer as they tried to get to know each other better. Session ended with the group dancing to a movement theme of “let’s sail away stress, sail away cancer”.

Session 3: Letting Go.

During Session 3, participants expressed an increased group connection. They enjoyed being playful with the balloons and acknowledged that they were learning to “release” and “let go” and to allow themselves to be more vulnerable as they engaged in movement activities. Below are some direct quotes from participants as they described their DMT experience:

“I have a lot of scar tissue. I feel that stretch. I don’t laugh or smile a lot so when I am here, I do. I feel that I am lightening up a bit, if I can do this here, I can do this outside too. It encourages me to let go outside, it has just been three weeks but I am feeling that I am changing . . . inspired seeing others let go.”

Participant sharing focused on what in their lives were hard to let go. In concert, movement imageries centered on letting go of control, which was enacted through giggling, expanded movements (open stretched arms), being “groovy” (engaging in funny/silly movements), being happy, and releasing (through breath).

Session 4: Acceptance of Grief and Providing Support.

The over-arching theme of the 4th session’s group sharing was honoring experiences of grief brought about by their cancer diagnoses and/or losing loved ones to cancer. Participants shared details about their illness and where they were in their healing process. Cancer survivors discussed “grieving for loss of self” as they acknowledged that their bodies were no longer the same. In this respect, participants discussed what it meant to honor their body and accept the limitations they experienced as an outcome of cancer and their treatment. Caregivers, on the other hand, shared their grief related to losing their loved ones to cancer and/or chronic illness.

Individuals were becoming comfortable enough to take as many breaks as they needed. Some participants opted to engage in movement activities while seated. Session 4 ended with movement improvisations that expressed participants’ acceptance of grief and feelings of depression as a natural aspect of their cancer journey and path to healing. Participants engaged in movement imageries related to self-soothing (hugging self, gently rubbing parts of their bodies that were affected by cancer/surgery), symbolically offering their hearts to one another, and holding each other to provide and receive support.

Session 5: Building Group Harmony.

The 5th DMT session marked the study’s change of format to an open group, during which new members were welcomed to the group. There were a total of 13 participants in attendance. Group sharing focused on getting to know each other through a brief discussion of their cancer experiences. Movement activities centered on building trust and rapport by moving in synchrony and using rhythmic movements (snapping and clapping together, stamping feet together, lightly tapping their laps with both hands). Participants created a group choreography based on their movement expressions. They used symbolic movement to express emotions or brief thoughts, including: “energetic,” “grateful,” “happy,” “sunny,” “I

can hear,” “happy,” “love to dance,” “surprised,” “tingly,” “energetic,” “raise the roof,” and “push the bad away”. The mood was festive and light. The session ended with a movement theme that focused on supporting each other (holding hands) feeling strength and energy from the group and then slowly separating from the group to find individual strength as they said goodbye.

Session 6: Connection and Community.

The Session 6 group sharing centered on participants’ sense of connection to the DMT group. Participants shared about daily stresses and how they looked forward to the weekly group sessions.

“Happy to be here . . . really miss you guys.”

“I feel so supported and surrounded by love. Seeing the growth and joy in each of us is just so important and powerful.”

One participant also expressed her gratitude to be moving with the group despite her bodily pain.

“Grateful that I can move around, even though I hurt, it feels good to move around despite being in pain.”

Participants explored what it means to “connect” with their bodies and with others. They were prompted to listen to their bodies and allow their bodies to lead them to movement. They were encouraged to allow the movements to organically develop as they became more comfortable moving. They then started exploring what it means to connect to others. Participants reached out to others in groups of two or three. They then formed one big circle of dancers. The session ended with participants moving together in unison, using symbolic movement to express caring and giving love (open wide arms and bring them back to their chest). The mood was solemn and peaceful.

Session 7: Instilling Hope & Sharing Love.

The themes that emerged from the 7th DMT session pertained to participants learning to be “both strong and soft, and how to find strength in openness and vulnerability.” While participants shared about their personal worries (side effects of cancer medication, feeling sick, worrying about family members going through personal struggles, etc.), they also highlighted positive feelings about their lives.

Participants expressed their desire to share their positive outlook with others.

For example, one participant stated that the DMT sessions reminded her of “how important it is to tell people you love them and not to hold back . . . and to give them hugs.” Two caregivers acknowledged the importance of self-care as a means to care for others. Movement imageries focused on “instilling hope,” and participants described learning to “look at the world half-full and sharing that . . . making it more contagious.” The group was continuing to grow cohesive, which was manifest in a caring and hopeful group energy.

Session 8: We Will Carry the Burden with You.

The 8th session involved participants sharing their insights about how the group had helped them to develop greater empathy for others’ situations and to be willing to both receive and give support (“We will carry the burden with you.”).

One participant shared about feeling more open and being able to trust herself, while others shared feelings of empowerment and healing. As one participant expressed:

Reflecting on my breathing, how often I think I hold my breath, so the exercises – blowing bubbles felt releasing. . . . I don’t have to be insecure, finding my center, I can trust myself and people around me . . . Having more empathy for people knowing we are all walking wounded. I am not guarded – I am letting it affect me, which is an amazing sensation. . . . It feels empowering . . . healing.

Another participant shared how she felt safely, support, and empathy in the DMT group:

It’s amazing to me to think of how much you think you are OK on your own, but when you’re in a support group, it is such a nice wonderful experience. Realizing everyone needs more support. . . . Realizing I tend to be tough, strong . . . really nice to come here and release and feel safe and have the support.

Participants also expressed anxiety about the DMT program ending in four weeks, expressing their desire to continue keeping in touch and supporting one another. Movement activities involved taking turns leading and following movements in dyads (“mirroring activity”). For the closing movement ritual, participants engaged in a group dance to the song “Lean on Me” as they affirmed each other through

symbolic gestures (smiling with one another, offering caring, holding hands, putting their arms around each other).

Session 9: Knocking Down Cancer, Making Healthier Choices.

The prominent theme that emerged during the 9th DMT session was the recognized need to make healthier choices as a way to self-care. During the movement improvisation, one participant demonstrated movements similar to boxing and expressed that she was “knocking down cancer.” This became the focus of movement expressions and sharing that ensued. Participants identified what it would take to knock down cancer and other illnesses (diabetes, heart problems) such as: making a conscious decision to be healthy; making healthy food choices; allowing oneself to be vulnerable (“I’m not as strong . . . Having a protective shell is not always the right thing to do.”); and being more open and accepting of self (“It’s liberating. . . being able to not hold my breath has helped be more conscious of my breath, the release.”).

Participants also acknowledged the importance of being able to re-prioritize and learn to say “no” as they realized their need to care for themselves in order to be able to care for others (“This group helps us to remember and be more aware – that we need to take care of ourselves.”).

One participant shared that she had gained insight about her life through the DMT sessions, particularly learning to accept help from others and address her emotional needs:

Just in relaxing that, I am finding a little less sadness, a little more peace. Being kind to yourself. I’m a caregiver and not a care receiver, so angry about having to accept care – but grown in this process, feel miles ahead in terms of how I treat myself now. Can really see growth – it is artificial to be so willful – that life does not work on my schedule. . . . Being kind to yourself is so vital.

The session’s closing movement ritual comprised of expressions of peace, knowing, love, joy, acceptance, and worship.

Session 10: Hope and Compassion in Our Journey.

During the 10th session, participants continued to discuss the challenges of dealing with their cancer diagnosis and/or recovery. They shared about the isolation they experienced:

“Cancer changes one’s outlook in life . . . it can be lonely and hard to relate to others.”

Those who were in remission shared their journey of recovery and reassured survivors in active treatment (“being patient . . . but it gets better. It may take a while but it gets better.”). Further, participants marveled at the sense of community represented in the DMT group and how they were comfortable in sharing about all aspects of their lives (new birth, death of a pet, grandchildren, family issues, etc.). As in session 8, participants expressed their anxiety about the DMT program ending.

“What will happen next? This is needed . . . this type of support is needed.”

The session ended with a movement ritual focused on expressing gratefulness, hope and joy. The mood was light and happy.

Session 11: All of us are Survivors, We are Grateful.

During the 11th session, participants shared about the challenges and tragedies that they had overcome in their lives. The theme centered on transformation – how life experiences transformed participants (including taking part in the DMT program). The sharing focused on resilience and survivorship as a participant stated “We are survivors; every day is a blessing.” Another participant shared that the DMT sessions helped her to be more grateful:

“Life is so precious. All of us are survivors. Just to be able to survive, we are grateful. Not worry about the tiny things because it is not worth it. A lot of people are dealing with huge tragedies and we don’t know.”

The session concluded with a closing movement ritual during which participants showed expressions of gratefulness, deep love, joy, hugs, compassion, hope, respect and peacefulness.

Session 12: This too shall pass . . . healing and strength.

For the last DMT session participants brought food (potluck) to celebrate their “graduation” from the

program. The primary investigator prepared award certificates and gifted participants with bubbles.

During the first part of the session, the mood was festive, light, characterized by a lot of laughing and giggling. Then during the sharing, participants discussed the positive changes they have made in their lives as a result of their participation in the DMT sessions (going for a massage, incorporating the exercises in their daily lives, being more positive in their outlook, or reaching out to their loved-ones and friends). All of them expressed gratitude for the opportunity to be part of the DMT program.

People expressed feeling safe in the group and grateful for the connections they made with other group members. For example, one caregiver stated:

“Life is so precious and so sweet. I pray for each and every one of you. I want to be in touch. This is part of this (crying) . . . I don’t cry - you can ask everyone who knows me, I don’t cry. And that is what is so amazing to me, that this has allowed me to go ahead and let it go.”

A survivor shared that she was growing in terms of her mood and body awareness:

“So many things that this group has brought attention to – my body awareness, holding my breath, not breathing normally, being aware of how I am feeling. As a caregiver, I live outside myself so much and reach out, it’s natural to be outside of myself. This is fascinating to explore my guardedness, as a survival instinct, it is a protective nature – you can’t let your guard down when you are giving so much. It really catches my attention when – I need my reserve, needed the reservoir filled up. I needed to check myself in, to take care of myself. This (DMT group) has allowed me a medium – a very safe and nurturing place to explore those things. I guess I quite realized now how protective I am – veiled. I carry that with me – I’m OK. . . . Becoming more aware. Very grateful and thankful for this opportunity.”

In the end, participants emphasized the importance of balancing self-care with having compassion for others. All of the participants agreed that the DMT sessions fostered their compassion for others and their desire to help others, as expressed by one participant:

“It has been made real to me to remember that we don’t know where others have been, we don’t know their struggles. It helps me to go beyond myself whenever I am meeting others and socializing with others.”

The last DMT session ended with participants expressing hope (“This too shall pass.”) and that they would continue to transcend the challenges in their lives. The closing movement ritual involved symbolic movement expressions of love and caring for each other and offering their hearts to one another and to the higher power.

5. 2.4. Follow-up Evaluation and Feedback

Twelve weeks (3 months) following session 12, seven participants (6 cancer survivors and 1 caregiver) attended the follow-up session and completed the final set of measures. The mood was generally light and individuals were excited to catch up with one another. Participants completed the evaluation measures while they enjoyed light refreshments (water, juice, vegetable tray, cookies, cake, and fruits). Group sharing centered on participants’ continued path towards self-care. Individuals took turns in describing the decisions they had made to be “healthier,” such as connecting with old friends, pursuing meaningful relationships, devoting more time to self (retiring from work, taking on less responsibilities, visiting home village and being with family, or travelling more for leisure), and being more active (obtaining a walker, exercising/practicing the warm-up movements learned during the DMT program). Participants also noted that they felt good about their health, learned to be more relaxed, and to listen to their bodies.

One participant who had displayed a lack of body awareness in the DMT session (and almost injured herself in the process) reported that she was beginning to understand her limits and pay attention to her body. She recounted attending a party and taking the time to sit down when she felt tired instead of pushing herself to continue dancing.

“I stopped and went to sit because I did not want to fall. . . I said I can go on for an hour but after 15 minutes, I realize I was tired I don’t think it would be a good sight to fall in the center in front of everybody . . . so I sat down and rested.”

The participants expressed disappointment that they were not going to dance/move during the follow-up meeting. They were also eager to find out if there would be another DMT program offered in the coming months (“Is it too early to ask if the program will continue?”). When informed that another dance/movement program would be offered, they expressed enthusiasm about attending the sessions but still indicated anxiety about having some break between programs (“Is it OK to still join . . . I have not had practice. . .”).

Towards the end of the session, the primary investigator met with each participant to share and discuss his or her individual results and elucidate the context of these results. Specifically, a survivor whose QOL scores decreased from baseline to post DMT explained that he was experiencing more health problems toward the end of the study, which warranted him to be hospitalized thrice (kidney, eye and throat infections). Despite barely recovering from these illnesses, he expressed being grateful and happy to be with the group and being encouraged to hear that other participants “are doing good.”

Chapter 6: Discussion and Conclusion

This dissertation research explored the therapeutic benefits of dance/movement therapy (DMT) among both cancer survivors and caregivers in a practice-based setting while adhering to principles of community based-participatory research (CBPR). DMT's effectiveness as a therapeutic intervention was examined using both objective and subjective outcomes through the use of quantitative and qualitative data-collection methods to gain a holistic and in-depth understanding of participants' experiences. Specifically, this study investigated DMT's effectiveness on positively impacting participants': 1) mental health functioning; 2) subjective assessment of their quality of life; 3) body awareness; and 4) sense of group cohesion. Five objective outcome evaluation measures were used to measure any changes on these dependent variables among participants. These measures included: 1) Outcomes Questionnaire- 45 (OQ-45), a measure of mental health functioning; 2) Functional Assessment of Cancer Therapy- General Version 4 (FACT-G), a measure of subjective quality of life for cancer survivors; 3) Caregivers Quality of Life Index (CQOLI), a measure of subjective quality of life for caregivers; 4) Multidimensional Assessment of Interoceptive Awareness (MAIA), a measure of body awareness; and 5) Group Cohesiveness Scale (GCS), a measure of participants' sense of belonging and engagement in the group. The OQ-45 and GCS were completed after each DMT session, while other measures were completed at baseline, the participants' 4th session, final session and at follow-up (12 weeks after the last session).

Qualitative data were collected to gain participants' subjective opinions and to give context for the quantitative results. The qualitative data comprised responses to an open-ended questionnaire (completed at the end of each session), audio-recordings of each session, and a compilation of group session notes written by the primary investigator and her two undergraduate research assistants.

6.1 Qualitative Findings

Participants' responses from the open-ended questionnaire were organized and coded using directed content analysis (Hsieh & Shannon, 2005). Specifically, a priori categories were informed by Ferrell's

Quality of Life framework (QOL) which includes four interrelated dimensions: physical, psychological, social and spiritual wellbeing were used (Ferrell, 1997). Per this analysis, participants' responses indicated that they felt that the DMT sessions helped enhance their physical, psychological,

6.2. Quantitative Findings

6.2.1. Mental Health Functioning

Despite a limited sample size ($n = 16$), the quantitative results comparing participants' OQ-45 scores (baseline vs. final) revealed encouraging and positive findings. Results showed that participants' overall mental health functioning significantly improved with moderate to large effects ($d = 0.70$) after they attended the DMT sessions. Specifically, the DMT sessions were found to be most effective in alleviating participants' symptoms of distress (fewer symptoms of anxiety and depression), and in promoting better quality of their interpersonal relationships (less loneliness).

These findings were consistent with a 2013 meta-analysis of the therapeutic benefits of 23 evidence-based DMT interventions over the past 20 years ($N = 1078$), which showed that DMT was effective in promoting QOL, and that it had a small but consistent effect on improving mood, affect and wellbeing (Koch et al., 2014). What is notable for this current study is that although no one among the 16 participants was able to attend all of the 12 weekly DMT sessions, they reported marked changes in their mood and fewer symptoms of depression and anxiety in as few as three sessions. Furthermore, the changes in their domain scores for Symptom of Distress (SD) and Interpersonal Relationships (IR) indicated large (SD, Cohen $d = 0.80$) and medium (IR, Cohen $d = 0.70$) effect sizes (Sullivan & Feinn, 2012). Despite the reliable change scores among participants, there were no clinically significant changes that occurred on their overall OQ-45 scores. This suggests that participants still experience significant (above the cut-off for general population) mental health concerns, echoing cancer survivorship literature which shows cancer survivors often experience physical and psychological distress throughout their life (Brown, Levy, Rosberger, & Edgar, 2003; Hong, Zhang, Song, Xie, & Wang, 2015).

These positive outcomes suggest DMT's promise as a potentially effective intervention in promoting QOL of cancer survivors and caregivers. Additionally, it is impressive to note that the positive changes

observed on participants' overall mental health functioning and mood were still significantly evident at follow-up (three months after their last DMT session). These results were corroborated qualitatively by participants' subjective comments about their DMT experience through which they consistently expressed feeling better ("happier," "lighter," "cheered up") after each DMT session they attended.

6.2.2. Subjective Sense of Quality of Life

Two quality of life measures were used (FACT-G and CQOLIC) because participants were a mixed group of cancer survivors and caregivers. For the cancer survivors ($n = 9$), results did not show a significant difference in their subjective sense of quality of life (QOL) on the FACT-G between baseline and their final DMT session.

Although participants' QOL scores showed an upward linear trend implying better QOL, this difference was not statistically significant. This lack of significance might have been due to the limited sample size, and thus, low power of the study (Button et al., 2013). Despite this, the change in cancer survivors' QOL scores revealed a moderate effect size (Cohen $d = 0.61$). This finding supported the results of the aforementioned 2013 meta-analyses on DMT studies, which found also moderate effects for quality of life (Koch et al., 2014).

The FACT-G's domain scales -- 1) Physical Wellbeing, 2) Emotional Wellbeing, 3) Social Wellbeing, and 4) Functional Wellbeing -- revealed that, except for emotional wellbeing, participants did not show significant improvements. Better emotional wellbeing for cancer survivors meant that they reported a significant decrease in feelings of sadness, nervousness, and worries about health and dying. Results further indicated that after participating in the DMT program, participants experienced greater satisfaction with how they coped with cancer and more hopeful in their fight against illness. This is important because literature shows that adopting a "fighting spirit" against cancer is positively correlated with information-seeking behaviors, which can positively impact cancer outcomes (Nelson, Friedman, Baer, Lane & Smith, 1989). Spirituality as a way in which cancer survivors find meaning (benefit finding) for their cancer diagnosis, as well as positive religious coping (looking to God for support, strength, guidance), can increase psychological wellbeing (Herbert, Zdaniuk, Schulz, & Scheier, 2009; Puchalski, 2012).

It is noteworthy to highlight that the cancer survivors' scores for this scale revealed a large effect size, complementing those results from the OQ-45. Participants' qualitative accounts further supported these findings as participants consistently expressed how the DMT sessions uplifted their mood and provided a coping strategy ("... uplifted me and helped my sadness"). Interestingly, at follow-up (12 weeks after the last offered DMT session), participants reported a significantly higher subjective sense of wellbeing and quality of life compared to what they reported at baseline and at their final session. Additionally, participants reported significant improvements at follow-up in three of four domain scales of the FACT-G namely: Social Wellbeing, Emotional Wellbeing and Functional Wellbeing. This implies that although not immediate, DMT can offer late and possibly lasting effects as participants over time felt an overall improvement in their social relationships (feeling more supported and connected to family and friends), better mood (less sadness and worry, more hope), and a better ability to function and find enjoyment in their daily lives (sleep better, accept their illness, find fulfillment in their lives).

For the three cancer caregivers in the current study, their CQOLI scores did not improve between baseline and final session nor did they improve at follow-up. Because there were only three caregivers, making any statistical comparisons was not feasible. Understanding the context of caregivers' involvement was important in interpreting these results. In this respect, two caregivers qualitatively reported they were grieving the recent loss of loved ones due to cancer. One caregiver also reported worrying about a sibling who was hospitalized and dying of a chronic illness as well as concerns about an adoptive son with Fetal Alcohol Syndrome. These personal contextual factors might have explained any decreases in QOL scores from baseline to final session. At follow-up, only one caregiver was in attendance.

Converse to these quantitative results, open-ended comments provided by caregivers indicated that they found the DMT sessions to be helpful in promoting their emotional, physical, social and spiritual wellbeing. The caregivers expressed that even as they were going through challenging times, they still felt blessed, grateful and supported during the DMT sessions. One caregiver stated that she appreciated that the DMT program included a mixed group of cancer survivors and caregivers. She confided that

although her primary reason for attending the DMT sessions was to support her mother (who was also a participant and a cancer survivor), she personally benefitted from DMT sessions. She expressed that through the DMT sessions, she learned to “let go” and allow herself to be emotionally vulnerable. She further described how the DMT sessions facilitated a closer connection with her mother (e.g. having dinners together after the DMT sessions, calling each other during the week to catch up, and reminding one another about the DMT sessions).

Despite these compelling examples of DMT’s positive impacts on the caregivers’ subjective QOL, there is the chance that they would have fared better if they were provided a DMT group focused solely on caregivers. Although the caregivers in this study were open to sharing and expressing their overall positive DMT experiences, it is possible that a mixed DMT group composition posed a barrier for them to comfortably share about the burden of caregiving. Thus, a group specifically for caregivers might help address their own psychosocial needs without having to focus on their loved ones and how their sharing would impact them (Northouse, Katapodi, Song, Zhang, & Wood, 2010).

6.3 Body Awareness

The Multidimensional Assessment of Interoceptive Awareness (MAIA), was used to assess the eight different dimensions of interoceptive awareness or participants’ sensitivity to body states and bodily signals (Ainley & Tsakiris, 2013). These eight scales were: 1) Noticing, 2) Not Distracting, 3) Not Worrying, 4) Attention Regulation, 5) Emotional Awareness, 6) Self-Regulation, 7) Body Listening, and 8) Trusting. High scores for each scale indicated greater body awareness (Mehling et al., 2013). Participants’ scores between baseline and final DMT session for the eight MAIA domain scales revealed no significant differences. However, at follow-up, two scales: 1) Not Distracting, and 2) Self-Regulation, showed a significant change over time.

It was disappointing to note that participants’ score in the Not Distracting scale decreased after they joined the DMT program. The Not Distracting dimension pertains to participant’s ability to face their pain or avoid distractions as a means of coping (Mehling et al., 2012). Because DMT is a form of body-mind

therapy, it was expected that one of the positive effects of DMT would be that participants, over time, would grow in their awareness of experiences of pain and discomfort in their bodies. Yet, participants' scores showed a significant linear downward trend from baseline to follow-up. This implies that overall, participants' tendency to ignore or distract themselves from sensations of pain and discomfort actually increased after attending the DMT sessions and that they used avoidance or distraction as a means of coping with their pain.

The pain research literature suggests that being mindful of one's painful sensations can actually help attenuate one's experience of pain (Gard et al., 2012). Growing evidence suggests that directing one's attention to one's present sensory experience of pain is less cognitively demanding than the task of avoiding it (Gard et al., 2012). By accepting and focusing awareness on one's pain, an individual learns to become non-judgmental about their body sensations instead of catastrophizing (misinterpreting or exaggerating) the pain thereby actively avoiding or distracting oneself from the experience (Sturgeon, 2014). Thus, distracting oneself from the body experience of discomfort is viewed to be a less helpful coping strategy in pain management (Mehling et al., 2013).

Participants' decreased ability to focus on their pain or body discomfort after attending the DMT sessions might be interpreted as an unintended negative outcome of the DMT program. However, it is also likely that the participants did not fully understand the questions for the Not Distracting scale because questions were negatively worded. In another study, developers of the MAIA acknowledged that this scale (Not Distracting) was confusing to primary care patients (Mehling et al., 2013). Mehling and colleagues (2013) found that the primary care patients in their study scored differently and appeared to have used more of avoidance and distraction from pain after attending mind-body therapies. Yet, they found that this was not the case for participants who already had some training and experience in mind-body therapies.

Another weakness of the MAIA measure was that it was validated among individuals who already had previous training in interoceptive awareness. In fact, the MAIA developers recognized the concepts on interoceptive awareness (as measured by the eight different dimensions) would be challenging to perceive

and understand for those who had no prior experience in mind-body therapies. As a result, Mehling et al. (2013) acknowledged that the items for this scale needed further refinement and re- wording to improve its reliability. Because this scale has lower reliability compared to the other MAIA scales, it is highly probable that participants in the current study understood the items differently than intended.

Participants also showed positive significant changes on their MAIA Self- Regulation scale scores. This indicates that their ability to pay attention to body sensations and regulate their experience of psychological distress increased. Specifically, participants were able to: 1) calm themselves when overwhelmed, as they brought awareness to their bodies, 2) notice body changes arising from their emotional states, and 3) use breathing techniques to reduce feelings of tension (Mehling et al, 2012).

Participants' scores in "Attention Regulation" between baseline and follow-up also showed positive significant change. Attention Regulation refers to participants' ability to adjust their attention and focus on the different body sensations that they presently experience, including sustaining and controlling their attention (Mehling et al., 2012). Taken together with the improved ability for self- regulation, it appeared that participants' body awareness such as attention to their breathing, improved. This was corroborated by participants' subjective DMT experience, as revealed in the following participant comment:

"I can't believe it is already 8 weeks – time flies. . . reflecting on my breathing, how often I think I hold my breath, so the exercises – blowing bubbles, felt releasing, didn't realize how stressed I was till I was able to release . . ."

6.4. Group Cohesion

The Group Cohesiveness Scale (GCS) was used to assess participants' sense of cohesion and engagement in the group. Although participants subjectively expressed feeling connected to the DMT group, their GCS scores between baseline, final and follow up showed only non-significant trends toward improvement. This lack of significant change in participants' GCS scores could be attributed to the lack of variability of their scores from baseline session to final session – that is, participants were already providing high ratings, and thus achieving a ceiling effect early in the DMT program.

There might be a biological basis as to why participants quickly felt a strong sense of cohesion in the DMT group. Studies in neuroscience have demonstrated how moving in synchrony, encouraging and sustaining eye contact, and engaging in “mirroring activity” activates the brain’s mirror neurons (Berrol, 2006). Engaging in these activities is proposed to facilitate imprinting, attachment and attunement among humans, which are necessary components in the development of empathy (Berrol, 2006). Additionally, social psychology research suggests that mimicry has an adaptive value. Specifically, Van Barren and colleagues (2004) noted that that one of the behavioral consequences of mirroring is that it engenders prosocial behaviors not just to toward the mimicker but also towards others. They found that mimicry can alter the way in which people perceive their environment and interact with others (p.73).

Interestingly, attunement of affect through sharing and matching one another’s movement qualities (intensity, duration, tempo, etc.) as well as behavioral, facial and emotional expressions is a fundamental aspect of DMT (Berrol, 2006). All these components were included in each DMT session and thus might have aided in developing the immediate shared emotional bond and connection among DMT participants. Further, Van Barren (2004) and colleagues also postulated that mimicry may function as “social glue” that strengthens the social bonds in groups (p.73).

Although it can be argued that other forms of physical activity can enhance individuals’ QOL, research reveals that participants are generally unable to sustain their motivation to adhere to such programs and tend to quit early (Bellardinelli, Lacalaprice, Ventrella, Volple, & Faccenda, 2008). DMT intervention programs historically experience low attrition rates (Bellardinelli et al., 2008). This has been attributed to DMT being a pleasurable activity that combines physical and dance movements with social interaction, which may motivate individuals to complete the program (Bellardinelli et al., 2008). For the current study, participants missed the DMT sessions when they felt too ill (dealing with chronic illness and/or side effects from their cancer treatment). On certain occasions when participants might have been tempted to miss a session, they described being glad that they decided to attend because they found the DMT session helpful. This sentiment was corroborated by the following comments:

“I felt physically sick when I came but I feel so much better.”

“I was in some pain but I'm alright after our cool down/sharing time.”

“I was stressed trying to get a ride here tonight... I was able to finally relax once I got here.”

Availability of local (Fairbanks, Alaska) cancer support groups is limited. Those provided often offer opportunities for gaining cancer education instead of opportunities for sharing and caring. An example is the Breast Cancer Support Group that meets once a month at the J. Michael Carroll Treatment Center of the Fairbanks Memorial Hospital. The two-hour monthly meetings typically comprise guest speakers followed by questions and answers.

Thus, the current DMT program might have been a refreshing change for cancer support for cancer survivors and caregivers. The DMT sessions were offered weekly, free of charge, and allowed participants to interact and help each other address their psycho-social, physical and spiritual needs. Participants reported that they enjoyed their DMT program's format (a mix of movement, music and psychotherapy). The participants' subjective comments about their DMT experience and improvements noted in their quantitative scores likely suggest that DMT can be a holistic intervention (Ravelin et al., 2006) and can enhance different aspects (psychological, social, physical and spiritual wellbeing) of individuals' QOL.

“Moving in the group helped feeling in the body. The connections with the people - smiles, sharing, tears, movement - strengthened me as a person and revitalized me physically.”

“My outlook in life has improved. I believe that things will work out even if I don't believe at first.”

This supports existing cancer coping literature showing that receiving emotional and social support are associated with lesser mood symptoms and better psychological wellbeing for cancer survivors (Koopman, Hermanson, Diamond, Angell, & Spiegel, 1998; Usta, 2012). Specifically, emotional disclosure is noted to have health benefits for cancer survivors (Koopman et al., 1998; Stanton et al., 2000; Schlatter & Cameron, 2010).

6.5 Other Follow-up Activities

Because this study was anchored on the principles of a community-based participatory research (CBPR), several activities were conducted to ensure that the research initiatives of the DMT program would continue to be locally relevant and have direct applications in addressing the needs of the cancer survivors and caregivers in Fairbanks, Alaska.

6.5.1. Co-learning and Empowering Process

One of the positive outcomes of this study was the co-learning and empowerment process that occurred among the DMT participants and researchers. This was particularly demonstrated when participants actively advocated for the DMT program to be offered through the hospital (FMH) not only to the existing DMT group but to new patients as well. Several participants took the initiative to talk to FMH providers (the cancer navigators and oncologists) about their positive DMT experience, and to request their support of another DMT program. One participant who was active in the aforementioned Breast Cancer Support Group and a member of the FMH's Cancer Committee was vocal about her desire that the DMT program continue to grow:

“In my mind, this group is not ending . . . we will be together no matter what . . . I am determined to do whatever I can to see if we can keep in touch (e-mail, phone number etc.). The hospital knows what this group is and they are becoming supportive. This is a seed that just really got planted and that it really needs to grow and blossom and provide other people the opportunity to come. This is really wonderful.”

The two student undergraduate researchers were also empowered by their new knowledge and skills in DMT and program evaluation. One, under the mentorship of Lopez and Sharma, applied for an undergraduate research grant to be able to offer a dance/movement support group for cancer survivors and caregivers. In this effort, she completed the Healthy Steps Instructor's Certification (the gentle exercise program developed for chronically ill populations used in the current study) and successfully received funding for her “Dance and Movement for Cancer Survivors and Caregivers.”

6.5.2. Preliminary Research Findings Presentations

A cornerstone of CBPR is the importance placed on collaborative partnerships in all phases of the research process (Israel, et al., 1998). To adhere to this principle, the primary investigator sought consultation from community stakeholders (cancer navigators, Education Manager of FMH, Hopeful Connections Support Group, dissertation committee, external licensed DMT and clinical psychologist supervisor) to gain advising about the research process and ensure that the DMT program was conducted in a manner that was culturally relevant and ethical. At the end of the study, two presentations of the findings were conducted to promote the co-learning process and disseminate findings and new knowledge gained to all partners.

The first presentation meeting was held in February 2015 at the J. Michael Carrol Cancer Treatment Center. The meeting was attended by the hospital's Cancer Navigators and Education Manager, the research team (primary investigator, two undergraduate research assistants) and the chair of the dissertation committee. Topics discussed during the meeting included: 1) summary of preliminary findings, 2) challenges and limitations encountered during the data-gathering process, and 3) DMT participants' request to continue offering the DMT program. Encouraged by the findings and results, FMH was open to continuing their UAF-Community partnership to offer the DMT program

Research results were also presented during the FMH's Cancer Committee Meeting held in April 2015 at the J. Michael Carrol Cancer Treatment Center. This multidisciplinary committee comprised oncologists, other specialists (ENT, Ob/Gyn, Family Practice, Urology) nurses (cancer navigators), other health service professionals (dietician, pharmacist, social worker), representatives from the American Cancer Society, and the FMH's Cancer Registry. The meeting was also attended by the DMT participant who had advocated for the DMT program to be included in the services provided to cancer survivors and caregivers. Meeting participants were especially interested in conducting a future Randomized Control Trial (RCT) to test the efficacy of DMT. In all, the DMT positive study findings facilitated the meeting members to support the hospital's continued collaboration with UAF.

6.6 Limitations, Strengths, and Implications to Research and Practice

Quantitative and qualitative findings from this study demonstrated DMT's therapeutic benefits and promise in promoting mental health functioning, subjective QOL, body awareness and sense of group cohesion among cancer survivors and caregivers in a practice-based setting. Outlined below are factors to consider when developing future DMT programs for cancer survivors and caregivers (Table 5.1). The study's limitations and strengths are discussed extensively including implications for clinical practice and research:

6.6.1 Study Design

Because this research had a practice-based focus and employed a naturalistic design, it was limited by low internal validity. Without a randomized control group, the study was unable to demonstrate DMT's efficacy as a clinical intervention. This prevents conclusions of causal relationship between DMT and the dependent variables studied: mental health functioning, body awareness, subjective QOL and sense of group cohesion. There were many possible factors that could account for the positive change exhibited by participants other than the DMT intervention, including random chance. Examples of these factors could include the following: 1) timing of when the DMT program was offered; 2) availability of just having a regular group for participants to interact with on a weekly basis; and 3) personal circumstances of participants. The positive results may be due to any of these factors other than the DMT intervention.

An additional potential limitations of the study is that because participants knew they were being observed, they might have modified or improved their behaviors based on what they perceived as the researcher's expectations (Leonard & Masatu, 2006). Although a randomized control trial (waitlist-control group) was the study's initial research design, there were several factors encountered early in the data-gathering process, which made this approach unfeasible.

Table 6.1

<i>Study's Limitations, Strengths and Recommendations for Future Research and Practice</i>			
Components	Limitations	Strengths	Recommendations
<i>Research Perspective & Study Design: Effectiveness Study</i>			
Effectiveness study: Practice-Based Small-N Design	a) Many confounds b) Low internal validity c) Low external validity d) No comparison group e) Not able to establish causation	a) CBPR principles b) Mixed Methods • In-depth study • Individual is the unit of analysis c) Ecological Validity • Based on actual practice • Pragmatic & Flexible	a) CBPR • Strengthen partnerships b) Interdisciplinary • Mixed Methods • Combine practice-based & patient-focused IF RCT: a) Larger hospital/sample Hospital could: • Assist in recruitment • Administer measures for control group in routine follow-up care
<i>Sample Size & Composition</i>			
Sample: n = 16 Mixed group	a) Low power b) Low reliability • Results may be due to random chance	a) Good for pilot study b) Inclusive: Informed by Pilot study with AN cancer survivors	a) Larger confirmatory study b) Separate DMT group for caregivers
<i>Data Collection & Interpretation</i>			
Measures: OQ-45, MAIA, GCS, FACT-G CQOLI, Open Ended Questionnaire	a) Participant Burden • Many • Long b) Measurement Limitations • Poor sensitivity (Ceiling effect) • Low reliability (Unclear wording)	a) Triangulation • Methodological • Investigator • Theory (Public Health, Clinical-Community Psychology & DMT)	a) Shorter measures b) Fewer measures c) Better sensitivity & reliability
<i>DMT Approach</i>			
	a) Few evidence-based research b) Difficult to standardize format c) Lack of Trained DMT experts in Fairbanks	a) Holistic b) Added Healthy Steps LEBED c) Successful short Intervention d) Researcher received some DMT training & supervision	a) Include mindfulness in DMT component b) Facilitators should get training & supervision in DMT c) Dance/Movement expert work with Mental health worker in running support group for cancer survivors & caregivers d) Recommend for cancer patients in active treatment or recovering from surgery e) Offer DMT in the hospital

Below are some of the challenges encountered in trying to conduct a DMT program using an RCT design for cancer survivors and caregivers in Fairbanks.

Recruitment.

Although participants were enthusiastic about taking part in the DMT group, recruitment for the wait list control group proved challenging. Most of participants expressed their desire to take part in the DMT program sooner (be in the Treatment Group). Some participants initially assigned to Wait List Control Group lost interest in the study while others had to withdraw from the study due to schedule conflicts (they were unable to commit to 16 weeks -- 8 weeks of completing measures with not treatment and another 8 weeks of DMT sessions).

Poor Compliance in Completing Measures for the Control Group.

Participants in the original wait list control group for the first four weeks of the DMT program struggled with completing the outcome measures on their own. Data collection for completed measures was scheduled at four week intervals to minimize participants' bias towards the researcher and avoid researcher familiarity. Despite emails and phone calls to fill out measures, participants did not regularly and completely fill out all the outcome measures.

Participants' Desire to Establish Therapeutic Connection with researcher.

Participants in the control group expected almost therapy-like sessions during scheduled meetings with the primary investigator to collect completed outcome measures. Locations for meetings were at local coffee shops although at times the primary investigator had to meet them at their homes because they were too ill to travel or had no available means of transportation. During these interactions, participants wanted to get to know the "therapist" during these meetings to share their information with her. As one participant expressed:

"I want to get to know you also. I don't want to be just a guinea pig for your research."

Due to these factors, the study design was changed to a single open DMT Group. Although some would view this as a weakness in the study design, others might consider this flexibility as actually being

one of the study's many strengths. Because the study designed adhered to the principles of community-based participatory research (CBPR), it was successful in facilitating strong collaborative partnerships with the local community (Fairbanks Memorial Hospital, Hopeful Connections Cancer Support Group and the Fairbanks Native Association).

This collaborative approach allowed the study design to be pragmatic and flexible to evolve according to the contextual factors that impact the research, purpose, and needs of participants. FMH suggested a DMT open group to accommodate their patient referrals. Realizing that all the participants (Treatment and Control) were also dealing with health concerns that could impact their attendance in the DMT program, the delivery of the intervention was changed from an 8-week DMT closed group (Treatment vs. Wait List Control) to a single 12-week DMT open group. In this way, participants could still experience some of DMT's benefits even if they could only attend one or two sessions due to health concerns.

Further, because the study design is practice-based and used a small-N design, it had strong ecological validity as it allowed for continuous assessments on typical cancer survivors and informal cancer caregivers in actual treatments (Graham et al., 2012). Additionally, employing a mixed-methods approach in this study's research design allowed for an integration of the qualitative and quantitative methodologies. By combining the strengths of these two methodologies, the study was able to capture a more in-depth account of DMT's impacts on the different dimensions of the QOL among cancer survivors and caregivers, including a broader understanding of their lived realities.

6.6.2. Sample Size and Composition

The low sample size ($n=16$) and a mixed group of cancer survivors and caregivers could be considered a limitation of this study. Because of the study's small sample size, the odds of observing if DMT had a significant effect on the dependent variables were low. A larger sample of cancer survivors and caregivers would have provided a better estimate for these populations and increased the ability to detect changes with small and medium effect sizes. Although participants were motivated to attend the DMT program, the study encountered participant attrition and absences due to health issues related to

illness and family situations and receiving follow-up care in Anchorage or out of state. Still, of the 16 participants, only two dropped out before completing at least four sessions.

Because the majority of the participants self-selected to participate in the DMT group, it is possible that the sample is not representative of the general population of cancer survivors and caregivers. Those who agreed to participate in the DMT group may have had the propensity to enjoy dance and movement as an activity. Thus, a participant bias towards dance might have exaggerated some of the positive results of this study. However, some participants expressed their initial hesitance and uncertainty about joining the group.

The rationale for having a mixed group of cancer survivors and caregivers was informed by the pilot study conducted by the primary investigator with Alaska Native cancer survivors. In general, cancer survivors undergoing active treatment often need and desire to be accompanied by their caregivers for their treatment and/or other daily activities. This was evident in the pilot study. Thus, some might consider that having a mixed group is actually strength of this study because it incorporated knowledge gained from previous research and was culturally responsive to Alaska Native culture being collectivistic and inclusive.

6.6.3. Data Collection and Interpretation

6.6.3.1. Outcome Measures

Although the measures were estimated to be easy to complete in a short period of time, the participants in the study actually took a longer time than expected (20 minutes) to complete all of the measures (30 minutes or more). There were certain occasions when they would submit the measures thinking they had answered all the questions; however, undergraduate research assistants would quickly find skipped questions or an entire page. Participants attributed this phenomenon to the “chemo brain.” They expressed that since undergoing chemotherapy and/or radiation, they started encountering more frequent memory and concentration difficulties. The caregivers on other hand described it as just being “old,” since the group was generally older and mostly in their 60s.

Some of the measures used in this study also demonstrated poor sensitivity and low reliability. For example, the group cohesion measure had low sensitivity in detecting changes from the DMT intervention. The Group Cohesiveness Scale also appeared to be a poor measure in tracking the development of participants' level of cohesion and engagement because participants' responses quickly reached a ceiling effect. Its sensitivity to change over the course of the intervention was therefore low. On the other hand, the body awareness measure (MAIA), was a relatively long questionnaire that had low reliability with some inconsistency and confusing items in some of its scales. For example, some of the MAIA scale items were confusing to participants because of negative wording. Additionally, some of the quantitative results (Not Distracting) were not consistent with the qualitative comments expressed by the participants. This might be due to the limitation of the measure as developers acknowledged that items in the two out of the eight scales (Not Noticing and Not Worrying) needed further refinement (re-wording) and as such had lower reliability than the rest of the scales in the MAIA (Mehling et al., 2012). Thus, researchers interested in measuring body awareness and group cohesion might choose different measures. Specifically, for the MAIA, one could choose to use only the six scales that have strong reliability out of its eight scales.

6.6.3.2. Triangulation

Using many approaches to investigate the research question could be considered a strength of this study. Triangulation in terms of methodology and theory increased confidence in the study's findings to answer the original research questions (Guion, 2002). The types of triangulation used for this study included methodological and theory.

Methodological Triangulation. The study used multiple methods of data-collection to enhance trustworthiness of the research findings. Sources of data for this study included: 1) quantitative through use of five outcome measures, and 2) qualitative through use of an open-ended questionnaire, listening and partially transcribing audio-recordings of each of the 12 DMT sessions, and DMT group notes (primary investigator and two undergraduate research assistants). Additionally, the primary investigator trained two undergraduate research assistants to assist with data-gathering and data-interpretation.

Having multiple individuals work on the research helped protect the integrity of the data. The three researchers checked each other's work to eliminate errors in data processing and minimize researcher bias and assumptions.

Theory Triangulation. This type of triangulation involves employing an interdisciplinary approach wherein multiple professional perspectives help interpret a set of data (Guion, 2002). For this current study, professionals from the field of public health, clinical psychology, community psychology, and dance/movement therapy contributed their perspectives for congruence and validation of results.

6.6.4.DMT Format

6.6.4.1. Length of Treatment

When providing a psychological intervention, one must have an idea how much is enough to see significant and clinical changes in an individual. In psychotherapy, the “dose-effect model” is used, in which *dose* pertains to the length of treatment or number of sessions, while *effect* refers to either the percentage of individuals who improved or the calculated probability of improvement seen for one individual (Kopta, 2003). For example, with regard to psychotherapy, one study estimated needing 26 sessions to see improvement in about 75% of clients (Reardon, Cukrowicz, Reeves, & Joiner, 2002). Another study (that used a more stringent criteria and survival analysis), estimated that it takes 21 sessions for 50% of clients experiencing dysfunction to see change, and 35 sessions are necessary for 70% of clients to demonstrate improvement (Stulz, Kopta, Lutz, Minami, & Saunders, 2013). Several outcomes studies support the “dose-effect model” where more psychotherapy is considered better and leads to greater chance of improvement (Kopta, 2003; Stulz et al., 2013).

There are currently no existing studies on DMT that have determined its “dose-effect” in general nor for cancer survivors and caregivers in particular. However, studies by Sandel et al. (2005) and Ho (2005) reveal support for DMT's use and success as a complementary treatment for cancer survivors and as a successful short-term intervention (Brauninger, 2014). For example, Ho (2005) found success when she conducted six DMT sessions with Chinese breast cancer women survivors. Mannheim and Weis (2004)

demonstrated positive changes in promoting QOL and self-esteem among patients (n = 115) in an oncology rehabilitation program within a multi-treatment context in Germany with an average of seven DMT sessions. Sandel and colleagues (2005) showed psychological and physical benefits among breast cancer survivors with 12 DMT sessions. This dissertation study adds to the DMT literature for cancer survivors and caregivers in practice-based setting in a small town like Fairbanks.

6.6.4.2. DMT Approach

Another strength of this study was that it was a holistic approach that was found to promote the different components of participants' quality of life (Ravelin et al., 2006). This was demonstrated in this study as cancer survivors and caregivers acknowledged that the mix of dance/movement, and sharing in a group format helped address their psycho-social, physical and spiritual needs. Further, the DMT approach used for this study incorporated the evidenced-based Healthy Steps Lebed program as the warm-up component of each session. Lebed, a safe and evidenced-based exercise program for cancer survivors or people suffering from chronic illnesses, was chosen to help address survivors' issues with lymphedema and muscle stiffness.

6.6.4.3. Training and Expertise of Researcher

The DMT program was facilitated by the primary investigator who was previously trained and experienced in DMT and in running therapy groups for various populations. Although the lead researcher was not a professionally licensed DMT practitioner, she had attended several seminars on DMT and is a student member of the American Dance Therapy Association (ADTA). In preparation for this research, the primary investigator attended a four-credit course (60 contact hours) on DMT in New York from a licensed DMT practitioner (Appendix L) and also earned her Healthy Steps Lebed Instructor certification. In addition, the researcher secured private DMT clinical supervision sessions (4 hours) from a licensed DMT/clinical psychologist (Dr. Ilene Serlin) who had expertise working with cancer populations.

6.6.5. Recommendations and Implications to Research and Practice

The study's DMT program was an intervention that aimed to help provide support and promote the QOL of cancer survivors and caregivers in Fairbanks, Alaska. As informed by the study findings and results, and the identified limitations and strengths, below are some recommendations for future research and clinical practice:

6.6.5.1. Confirmatory Study (RCT)

Despite the study's limitations, findings (qualitative and quantitative) were positive and encouraging. Thus, there is a need to conduct a confirmatory study with a larger sample size with a comparable control group (RCT). An RCT design could establish DMT's efficacy as an intervention in promoting the QOL of cancer survivors and caregivers.

6.6.5.2. Further Strengthen Collaborative Local Partnerships

The current study would have not been possible without the strong support of local community partners (FMH, Hopeful Connections Cancer Support Group, FNA). FMH supported the study by endorsing the study, helping with recruitment (posting fliers around the hospital vicinity) and providing the venue for the DMT sessions (FMH conference rooms). By adhering to the principles of CBPR, the research process was conducted in a manner that was culturally responsive, flexible and mutually beneficial to all research partners (research team, participants and local community).

Dissemination of findings and knowledge were conducted in a timely manner to provide participants and health providers with practical information on DMT's benefits for health promotion and services offered to patients. By working with the community, and integrating clinical and community psychology principles, the current study not only focused on promoting individual wellbeing but also identified ways in which the local health system could promote health and wellbeing among cancer survivors and caregivers. Therefore, future DMT research with this population would highly benefit from a CBPR approach in which stronger collaborative community partnerships could be developed. Further

strengthening community partners' (hospital) support could help minimize the challenges encountered, especially while trying to conduct an RCT study.

Studies have shown that patients are more likely to attend an exercise program if it is recommended by their physicians (Lewis & Lynch, 1993). Through its medical providers and staff (nurses, cancer navigators), the hospital could facilitate recruitment of a larger number of patients who are in active treatment and being followed-up (in remission). Particularly important would be administering outcome measures to wait list control group participants, thereby minimizing pre-treatment interactions with the researcher, ensuring higher compliance in measure completion and less attrition.

Participants in this study found it convenient to have the DMT sessions offered in the hospital. Several participants who were in active cancer treatment often came in for their medical appointments and then stayed to wait for their DMT sessions. They explained that, aside from not having to worry about transportation, waiting in the hospital felt more comfortable than in other public settings. In terms of composition, a separate DMT group for cancer caregivers is recommended. Although being inclusive (mix of cancer survivors and caregivers) offered some advantages, quantitative results from this study suggested that the caregivers did not benefit as much from the DMT program as the cancer survivors.

6.6.5.3. Mixed Methods

Relying solely on an RCT (high internal validity) design would fail to take into account the non-measured contextual factors that impact lived realities of typical cancer survivors and caregivers. In order to evaluate DMT in real-world situations, research needs to have ecological validity. Thus, a mixed-methods approach that integrates a patient-focused perspective (Lutz, 2003) in a practice-based setting is recommended for future DMT studies. This approach will better capture the complexities in assessing and evaluating impacts of health practices and psychotherapy interventions (Thurin & Briffault, 2006; Raw et al., 2012). In the current study, obtaining qualitative information complemented quantitative findings and promoted reliability and validity of results (Guion, 2002). This is particularly relevant when evaluating the effectiveness of a psychological intervention that incorporates the creative arts, such as DMT.

6.6.5.4. DMT Approach and Format

Results from this study tend to suggest that although DMT helped promote improved posture, balance, breathing, strength and energy, participants may have been using avoidance or distraction as a way to cope with their body pains (as shown from their Not Distracting scores). Studies on pain management show that this coping strategy is less effective than increasing awareness (mindfulness) of body pains (Gard et al., 2012). It is recommended to integrate more mindfulness and meditation in the DMT sessions, such as that of “Authentic Movement.” This is another DMT approach that integrates contemplative practice, encouraging an inner-world focus as one moves using natural movements (often with eyes closed) in the presence of a therapist as witness (Stromsted, 2009). In the current study, the researcher primarily used the “Chace Approach,” which focused on using symbolism, body action, kinesthetic empathy, mirroring, and rhythmic group activity to facilitate expression, communication, and connection (Bräuninger, 2014). Integrating these two DMT approaches could facilitate strategies for acknowledging and actively addressing body pain.

6.6.5.5. Group Facilitator’s Training

It is important that the DMT facilitator is a skilled mental health clinician and understands the theoretical foundations and techniques of DMT (such as the Chace and Authentic Movement approaches mentioned above). Because DMT is a specialized field that integrates the creative arts and mental health, there might be a lack of trained practitioners in Fairbanks, Alaska. As an alternative, an interdisciplinary perspective and collaboration should be undertaken. Dance/movement professionals in the community could be invited to partner with a trained mental health practitioner in conducting and evaluating psychosocial support groups for cancer survivors and caregivers. Additionally, group facilitator(s) should seek supervision (in-person or via distance) by a licensed DMT practitioner.

6.7 Conclusion

This study demonstrated the potential therapeutic benefits and effects of DMT among typical cancer survivors and caregivers in a practice-based setting in Fairbanks Alaska. Despite its small sample size ($n = 16$), study findings show promising results. As an effectiveness study, it was able to provide an in-depth

and comprehensive understanding of how DMT helped promote the subjective QOL of the participants. Research findings provide some support for DMT as a complementary intervention to the current clinical services for cancer survivors and caregivers that could help relieve some of their cancer burden, enhancing cancer survivorship.

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Appendix A

Institutional Review Board (IRB) Approval Letter



(907) 474-7800
(907) 474-5444 fax
uaf-irb@alaska.edu
www.uaf.edu/irb

Institutional Review Board

909 N Koyukuk Dr. Suite 212, P.O. Box 757270, Fairbanks, Alaska 99775-7270

July 16, 2014

To: Ellen Lopez, PhD
Principal Investigator

From: University of Alaska Fairbanks IRB

Re: [626970-2] Dance Movement Therapy with Cancer Survivors and Caregivers in Alaska

Thank you for submitting the Revision referenced below. The submission was handled by Expedited Review under the requirements of 45 CFR 46.110, which identifies the categories of research eligible for expedited review.

Title:	Dance Movement Therapy with Cancer Survivors and Caregivers in Alaska
Received:	July 14, 2014
Expedited Category:	7
Action:	APPROVED
Effective Date:	July 16, 2014
Expiration Date:	July 16, 2015

This action is included on the August 6, 2014 IRB Agenda.

No changes may be made to this project without the prior review and approval of the IRB. This includes, but is not limited to, changes in research scope, research tools, consent documents, personnel, or record storage location.

Appendix B

Approved DMT Research Flyer

Healing Dance & Cancer Survivorship

If you are:

- A cancer survivor AND/OR a cancer caregiver
- 18 years or older
- Living in Fairbanks North Star Borough

You are invited to:

- Participate in a research study on the benefits of dance & movement for cancer coping & healing.

You will be asked to:

- Attend and evaluate an 8 week series of (once a week) Dance & Movement sessions
- Attend a Follow-up Findings Meeting 1 month after your last session

You will receive:

- Refreshments & chances to win \$25 gift cards or door prizes at each session

Please contact: Dinghy (“Denjie”) Sharma

UAF PhD Psychology Program

Call: (907) 750-6748 or dbsharma@alaska.edu



“Dancing Polar Bear, by Playa Quatsuk”

This research is being conducted in partnership with Fairbanks Memorial Hospital by:

-Dinghy B. Sharma (researcher) dbsharma@alaska.edu

-Dr. Ellen D.S. Lopez (supervisor) edlopez@alaska.edu
or (907) 474-7318

-UAF Institutional Review Board: uaf-irb@alaska.edu
or (907) 474-7800 (local) or 1-866-876-7800 (toll free)

You may also access their website:

<http://www.uaf.edu/irb/report-concerns>



Approved by:
University of Alaska Fairbanks
Institutional Review Board 2014
Protocol #: _____
For Use Through: _____

Appendix C

DMT Study Advertisement Published at Fairbanks News Miner

HEALING DANCE & CANCER SURVIVORSHIP

If you are:

- A cancer survivor AND/OR a cancer caregiver
- 18 years or older
- Living in Fairbanks North Star Borough

You will be asked to:

- Attend and evaluate an 8 week series (once a week) of Dance & Movement sessions
- Attend a Follow-up Findings Meeting one month after your last session

You are invited to:

- Participate in a reasearch study on the benefits of dance and movement for cancer coping & healing

You will receive:

- Refreshments & chances to win \$25 gift cards or door prizes at each session

This research is being conducted in partnership with Fairbanks Memorial Hospital by:
DINGHY ("DENJIE") SHARMA
UAF PhD Psychology Program
Call: (907) 978-1308 • dbsharma@alaska.edu



UNIVERSITY OF
ALASKA
FAIRBANKS

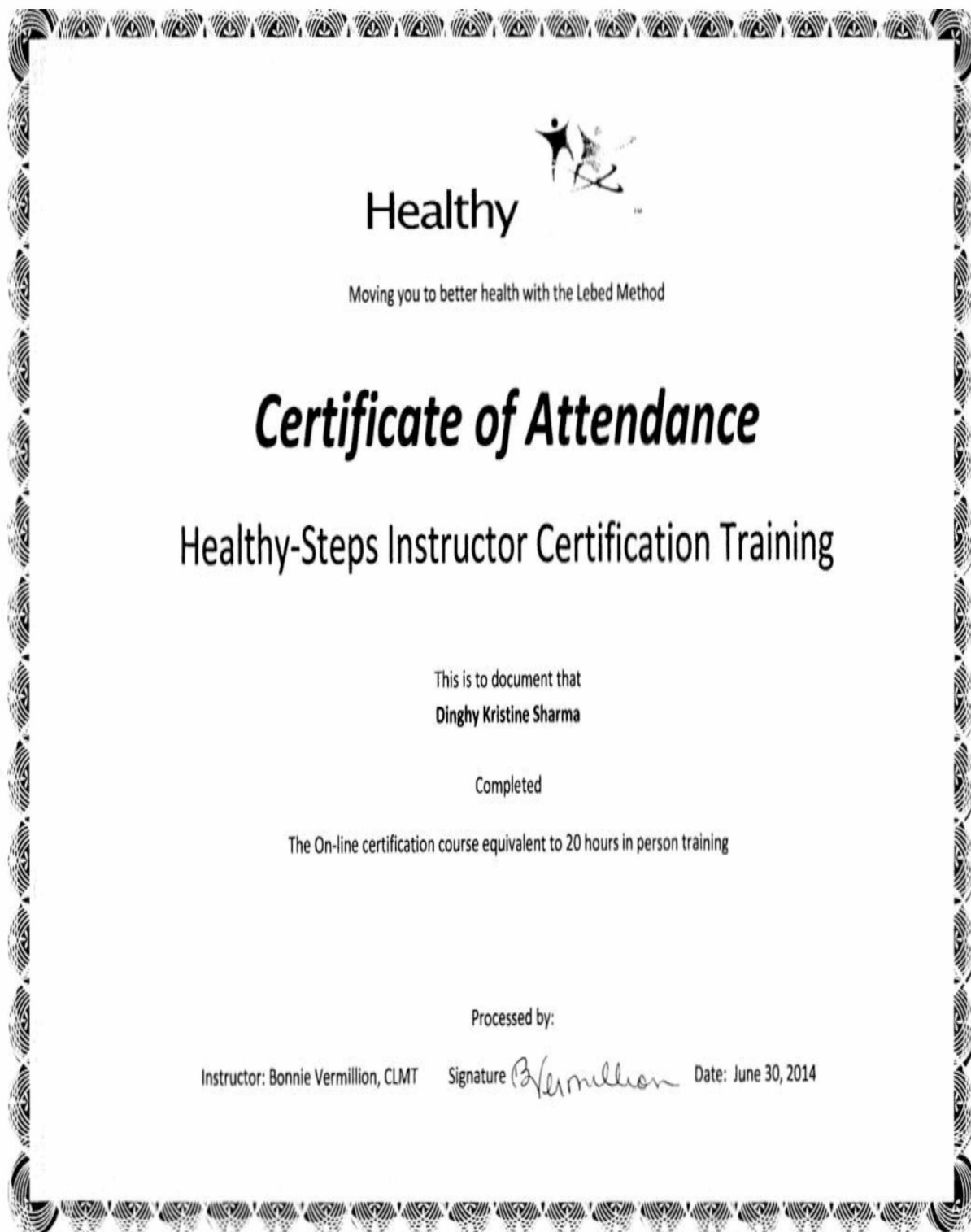


Banner Health
Denali Center
Fairbanks Memorial Hospital
Community-Centered

Approved by: University of Alaska Fairbanks • Institutional Review Board 2014 • Protocol #: 626970-2 • For Use Through: 7/15/2015

Appendix D

Healthy Steps LEBED Instructor's Certification



Appendix E

Demographic and Medical History Form

ID# _____

Thank you for taking part in this study. We appreciate your sharing your experiences and wisdom with us. In addition, we would like to know a few more things about you.

1) What is your interest in Cancer? (Please check all that apply)

☐ Cancer Survivor

☐ Cancer Caregiver

2) If you are a caregiver, what is your relationship to the person for whom you provide care?

☐ Spouse/Partner

☐ Extended family

☐ Sibling

☐ Paid care-giver

☐ Friend

☐ Professional Medical provider

☐ I'm a parent of

☐ Other (Please specify)

☐ I'm a child of

3) What type(s) of cancer have you (or your care recipient) had?

4) Are you (or your care recipient) *currently* having treatment and/or taking medication for cancer?

☐ Yes

☐ No

5) Has your doctor ever told you that you have heart trouble?

☐ Yes

☐ No

6) Have you ever had any pain or discomfort in your chest?

☐ Yes

☐ No

If YES:

a) Do you get pain in your chest when you walk uphill or hurry?

☐ Yes

☐ No

b) Do you get pain in your chest when you walk at an ordinary pace?

☐ Yes

☐ No

c) What do you do if you get pain in your chest while walking?

☐ Stop or slow down

☐ Carry on

d) *If you stand still, what happens to the pain on your chest when you experience it?*

☐ It goes away

☐ It remains the same or gets worse

7) Do you often feel faint or have spells of dizziness?

☐ Yes

☐ No

8) Do you experience any pain in your body?

☐ Yes

☐ No

If yes, please specify where in your body you feel pain:

9) Is there any reason you know of that means you should not follow an activity program even if you wanted to?

☐ Yes

☐ No

If yes, please specify:

10) Within the past 3 months, has a doctor and/or medical provider told you that you should not participate in any physical and/or exercise program?

☒ Yes

☐ No

11) Within the past 3 months, has a doctor and/or medical provider encouraged you to participate in a physical and/or exercise program?

☒ Yes

☐ No

12) Within the past 3 months, have you participated in a physical and/or exercise program

☒ Yes

☐ No

13) Are you pregnant?

☐ Yes

☐ No

14) Has a doctor and/or medical provider ever told you that you have high or low blood pressure?

☐ Yes

☐ No

If yes, are you in treatment for your blood pressure?

☐ Yes

☐ No

15) What is your gender?

☒ Male

☐ Female

16) How old are you? _____ Years

17) In general, how would you rate your health? *(Please check the one best answer)*

- ☐ Excellent
- ☐ Very Good
- ☐ Good
- ☐ Fair
- ☐ Poor

18) What types of health issues or conditions are you living with?

19) Which one or more of the following would you say is your race?

(Please check all that apply)

- ☐ White
- ☐ Black or African American
- ☐ Asian
- ☐ Native Hawaiian or Other Pacific Islander
- ☐ American Indian or Alaska Native
- ☐ Other _____

20) *If Alaska Native:* What is your ethnicity? _____

21) What is the highest grade or year of school you completed?

(Please check the one best answer)

- ☐ Never attended school or only attended kindergarten
- ☐ Grades 1 through 8 (Elementary)
- ☐ Grades 9 through 11 (some high school)
- ☐ Grade 12 or GED (high school graduate)
- ☐ College 1 year to 3 years (some college or technical school)
- ☐ College 4 years or more (some college or college graduate)

22) What is your current Marital Status? *(Please check the one best answer)*

- ☐ Married
- ☐ Divorced
- ☐ Separated
- ☐ Widowed
- ☐ Single and not living with boyfriend or girlfriend
- ☐ Single and living with boyfriend or girlfriend
- ☐ Other _____

23) What is your current employment (work) status? *(Please check the one best answer)*

- ☐ Employed for wages
- ☐ Self-employed
- ☐ Out of work for more than 1 year
- ☐ Out of work for less than 1 year
- ☐ A Homemaker
- ☐ A Student
- ☐ Retired
- ☐ Unable to work
- ☐ Other _____

24) How would you describe your household income?
(Please check the one best answer)

- ☐ I struggle to make ends meet
- ☐ I have enough to meet my needs
- ☐ I have more than enough to meet my needs

25) Where do you normally go for health information? (Please check all that apply)

- | | |
|---|--|
| <input type="checkbox"/> Health care provider | <input type="checkbox"/> Support group(s) |
| <input type="checkbox"/> Health center/clinic/facility | <input type="checkbox"/> Books |
| <input type="checkbox"/> Friends | <input type="checkbox"/> Magazines |
| <input type="checkbox"/> Family member | <input type="checkbox"/> TV |
| <input type="checkbox"/> Elders | <input type="checkbox"/> Radio |
| <input type="checkbox"/> Clergy (minister, pastor, reverend...) | <input type="checkbox"/> Internet (Websites) |
| <input type="checkbox"/> Traditional Healer | <input type="checkbox"/> Public forums or meetings |
| <input type="checkbox"/> Local Organizations | <input type="checkbox"/> Other |

26) As a cancer survivor or caregiver, how often do you experience the following?

	Often	Sometimes	Rarely	Never
Isolation	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Anxiety	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Stress	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Fatigue (feeling tired)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Sleep issues	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Poor diet	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Physical strain or pain	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Happiness, enjoyment	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Feeling loved, supported	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Personal growth	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Other (please specify below)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

27) Is there anything else you would like to share?

Thank you!

Appendix F

Functional Assessment Cancer Treatment General (FACT-G, V.4)

Functional Assessment of Cancer Therapy-General- 27 item measure

4- point Likert Scale (1 =Not at all, 4 =Very much)

Below is a list of statement that other people with your illness have said are important. Please circle or mark one number per line to indicate your response as it applies to the past 7 days.

Physical Well-Being (PWB)

GP1. I have lack of energy.

GP2. I have nausea.

GP3. Because of my Physical condition, I have trouble meeting the needs of family.

GP4. I have pain.

GP5. I am bothered by side effects.

GP6. I feel ill.

GP7. I am forced to spend time in bed.

Social/Family Well-Being (SWB)

GP1. I feel close to friends.

GP2. I get emotional support from my family.

GP3. I get support from my friends.

GP4. My family accepted my illness.

GP5. I am satisfied with family communication about my illness.

GP6. I feel close to my partner (or the person who is my main support).

GP7. I am satisfied with my sex life.

Emotional Well-Being (EWB)

GP1. I feel sad.

GP2. I am Satisfied with how I am coping with my illness.

GP3. I am losing hope in the fight against my illness.

GP4. I feel nervous.

GP5. I worry about dying.

GP6. I worry that my condition will get worse.

Functional Well-Being (FWB)

GP1. I am Able to work (include work at home).

GP2. My Work is (include work at home) is fulfilling.

GP3. I am able to enjoy life.

GP4. I have accepted my illness.

GP5. I am sleeping well.

GP6. I am enjoying things I usually do for fun.

GP7. I am Content with the quality of my life right now.

Appendix G

Caregivers' Quality of Life Index-Cancer

5-point Likert Scale (0 - Not at all, 1- A little bit, 2 - Somewhat, 3 - Quite a bit, 4 - Very Much)

Below is a list of statements that other people caring for loved ones with cancer have said are important. By circling one number per line, please indicate how true each statement has been for you during the past 7 days.

1. It bothers me that my daily routine is altered.
2. My sleep is less restful.
3. My daily life is imposed upon.
4. I am satisfied with my sex life.
5. It is a challenge to maintain my outside interests.
6. I am under a financial strain.
7. I am concerned about our insurance coverage.
8. My economic future is uncertain.
9. I fear my loved one will die.
10. I have more of a positive outlook on life since my loved one's illness.
11. My level of stress and worries has increased.
12. My sense of spirituality has increased.
13. It bothers me, limiting my focus to day-to-day.
14. I feel sad.
15. I feel under increased mental strain.
16. I get support from my friends and neighbors.
17. I feel guilty.
18. I feel frustrated.
19. I feel nervous.
20. I worry about the impact my loved one's illness has had on my children or other family members.
21. I have difficulty dealing with my loved one's changing eating habits.
22. I have developed a closer relationship with my loved one.
23. I feel adequately informed about my loved one's illness.
24. It bothers me that I need to be available to chauffeur my loved one to appointments.
25. I fear the adverse effects of treatment on my loved one.
26. The responsibility I have for my loved one's care at home is overwhelming.
27. I am glad that my focus is on getting my loved one well.
28. Family communication has increased.
29. It bothers me that my priorities have changed.
30. The need to protect my loved one bothers me.
31. It upsets me to see my loved one deteriorate.
32. The need to manage my loved one's pain is overwhelming.
33. I am discouraged about the future.
34. I am satisfied with the support I get from my family.
35. It bothers me that other family members have not shown interest in taking care of my loved one

Appendix H

Outcomes Measure (OQ-45).

Outcome Measures-45 Items by Subscale

Check the column and rating that best fits how much you agree or disagree with each statement.

5-point Likert Scale (1 = Never, 5 =Almost Always)

Symptoms Distress

2. I tire quickly
3. I feel no interest in things
5. I blame myself for things
6. I feel irritated
8. I have thoughts of ending my life
9. I feel weak
10. I feel fearful
11. After heavy drinking, I need a drink the next morning to get going
13. I am a happy person
15. I feel worthless
22. I have difficulty concentrating
23. I feel hopeless about the future
24. I like myself
25. Disturbing thoughts come into my mind that I cannot get rid of
27. I have an upset stomach
29. My heart pounds too much
31. I am satisfied with my life
33. I feel that something bad is going to happen
34. I have sore muscles
35. I feel afraid of open spaces, of driving, or being on buses, subways, and so forth
36. I feel nervous
40. I feel something is wrong with my mind
41. I have trouble falling asleep or staying asleep
42. I feel blue
45. I have headaches

Interpersonal Relation

1. I get along well with others
7. I feel unhappy in my marriage / significant relationship
16. I am concerned about family troubles
17. I have an unfulfilling sex life
18. I feel lonely
19. I have frequent arguments
20. I feel loved and wanted
26. I feel annoyed by people who criticize my drinking (or drug use)
30. I have trouble getting along with friends and close acquaintances
37. I feel my love relationships are full and complete
43. I am satisfied with my relationships with others
4. I feel stressed at work / school
12. I find my work / school satisfying

- 14. I work / study too much
- 21. I enjoy my spare time
- 28. I am not working / studying as well as I used to
- 32. I have trouble at work / school because of drinking or drug use
- 38. I feel that I am not doing well at work / school
- 39. I have too many disagreements at work / school
- 44. I feel angry enough at work / school to do something I might regret

Social Role Performance (SR)

- 1. I get along well with others
- 7. I feel unhappy in my marriage/significant relationship
- 16. I am concerned about family troubles
- 17. I have an unfulfilling sex life
- 18. I feel lonely
- 19. I have frequent arguments
- 20. I feel loved and wanted
- 26. I feel annoyed by people who criticize my drinking (or drug use)
- 30. I have trouble getting along with friends and close acquaintances
- 37. I feel my love relationships are full and complete
- 43. I am satisfied with my relationships with others
- 4. I feel stressed at work / school
- 12. I find my work / school satisfying
- 14. I work /study too much
- 21. I enjoy my spare time
- 28. I am not working/studying as well as I used to
- 32. I have trouble at work / school because of drinking or drug use
- 2 I feel that I am not doing well at work/school
- 3 I have too many disagreements at work/school
- 44. I feel angry enough at work/school to do something I might regret

Appendix I

Multidimensional Assessment of Interoceptive Awareness (MAIA).

5-point Likert Scale (1 -Never 0, Always - 5)

Noticing

1. When I am tense I notice where the tension is located in my body
2. I notice when I am uncomfortable in my body
3. I notice where in my body I am comfortable.
4. I notice changes in my breathing, such as whether it slows down or speeds up.

Not-Distracting:

5. I do not notice (I ignore) physical tension or discomfort until they become more severe.
6. I distract myself from sensations of discomfort.
7. When I feel pain or discomfort, I try to power through it

Not-Worrying

8. When I feel physical pain, I become upset.
9. I start to worry that something is wrong if I feel any discomfort.
10. I can notice an unpleasant body sensation without worrying about it.

Attention Regulation:

11. I can pay attention to my breath without being distracted by things happening around me.
12. I can maintain awareness of my inner bodily sensations even when there is a lot going on around me.
13. When I am in conversation with someone, I can pay attention to my posture.
14. I can return awareness to my body if I am distracted.
15. I can refocus my attention from thinking to sensing my body.
16. I can maintain awareness of my whole body even when a part of me is in pain or discomfort.
17. I am able to consciously focus on my body as a whole.

Emotional Awareness:

18. I notice how my body changes when I am angry.
19. When something is wrong in my life I can feel it in my body.
20. I notice that my body feels different after a peaceful experience.
21. I notice that my breathing becomes free and easy when I feel comfortable.
22. I notice how my body changes when I feel happy / joyful.

Self-Regulation

23. When I feel overwhelmed I can find a calm place inside.
24. When I bring awareness to my body I feel a sense of calm.
25. I can use my breath to reduce tension.
26. When I am caught up in thoughts, I can calm my mind by focusing on my body/breathing.

Body Listening

27. I listen for information from my body about my emotional state.
28. When I am upset, I take time to explore how my body feels.
29. I listen to my body to inform me about what to do.

Trusting:

- 30. I am at home in my body.
- 31. I feel my body is a safe place.
- 32. I trust my body sensations.

Appendix J

Group Cohesiveness Scale

5-point Likert Scale (1- Strongly Disagree; 3 - Agree; 5 - Strongly Agree)

How strongly do you agree with each of the following statements concerning your experience with the group so far?

- 2 I feel accepted by the group.
- 3 In my group, we trust each other.
- 4 The members like and care about each other.
- 5 The members try to understand why they do the things they do; try to reason it out.
- 6 The members feel a sense of participation.
- 7 The members appear to do things the way they think will be acceptable to the group.
- 8 The members reveal sensitive personal information or feelings.

Appendix K

Open-Ended DMT Questionnaire

- 9 Compared to how you felt before today's DMT session, how do you feel now?
- 9.2 Better
- 9.3 Same
- 9.4 Worse
- 10 How do you think the session influenced how you are feeling?
- 11 What suggestions or requests do you have for the rest of our DMT sessions?
- 12 Is there anything you would like to share (possibly, something that you were not able to share during the DMT session)?

Appendix L

Researcher's Training: 4 Credits Introduction to DMT Certification

Dance Therapy Courses

Awards This Certificate To

Dinghy Kristine Sharma

For the satisfactory completion of the
Intensive Winter course held in
Westhampton Beach, New York
December 27, 2013 – January 6, 2014

60 Contact Hours

4 Credit Hours


Linni Deihl, ADTR